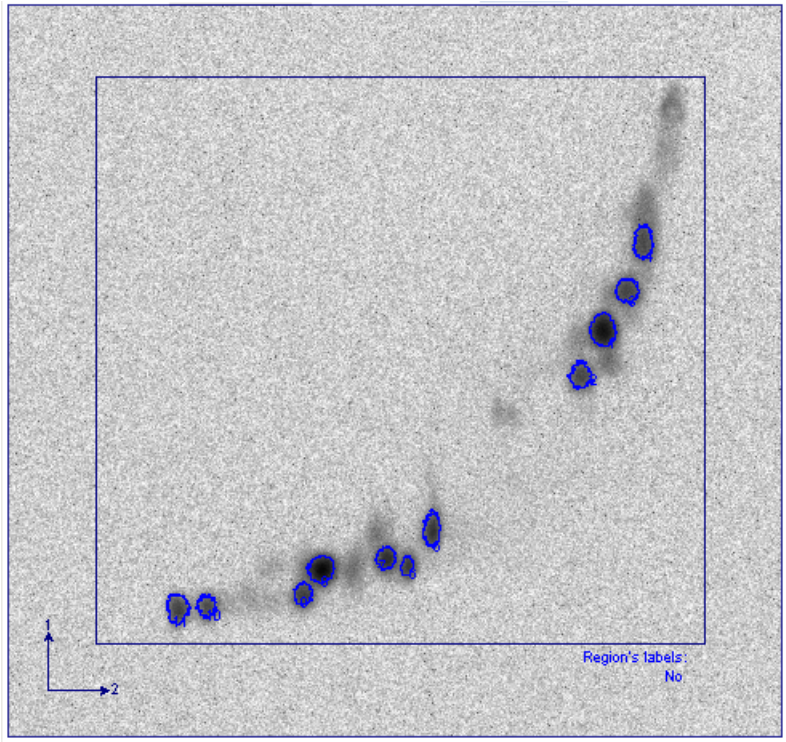
raytest

AIDA 2D Thin Layer Chromatography

User's Manual



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Contents

1 Introduction 5

Overview 5
Starting 2D TLC 6
Create User Registration 7

2 Using 2D TLC 13

Data Windows in 2D TLC 13
Image Window in 2D TLC 14
Contextual Menu of the Image Window 15
Image Overlays 16
Region Report Window 19
Data Description 19
Contextual Menu of the Region Report Window 24
Region Calibration Window 30
Graphics Pane of the Regions Calibration Window 31
Contextual Menu of the Region Calibration Window 33
Audit Trail Window 37
Additional Toolboxes in 2D TLC 38
2D TLC Calibration Toolbox 38
Run Direction Panel 39
Sample Definition Panel 40
TLC Plate Definition Panel 40
Origin/Front Panel 41
Region Determination Toolbox 42
Region Creation Pane 43
Integration Pane 45
Report Pane 47
Region Label and Name Pane 48
Actual Region Pane 55
Region Calibration Toolbox 55
Method Pane 56
Standard Pane 56

Calibration Curve Pane 58
GLP Supporting Tools Toolbox 60
Administration Pane 61
Data Trail Settings Pane 62
Finish Evaluation Pane 65
Region Names Pane 66
Automatic Export Pane 66
Data Trailing Pane 67
Publishing Layout Toolbox in 2D TLC 68
Print Options for Region Report 69
Print Options for Region Calibration 69
Print Options for Audit Trail 70
Print 71
Preview 73
Export and Import 74
Exporting Templates 74
Exporting Region Report 75
Exporting Region Calibration 78
Exporting Audit Trail 80
Automatic Export of the Region Reports/Region Calibrations 81
Importing Region Calibration 85

3 Performing 2D TLC Evaluations 87

Setting the TLC Plate and 2D Origin/Fron Overlay 87
Assigning Regions 92
Using Arrays (Matrices) 97
Defining a Background Signal 100
Performing Calibrations 105
Using Nametables 108
Creating and Editing Master Nametables 109
Activating Master Nametables 111
Exporting Master Nametables 112
Creating and Editing Work Nametables 114
Assigning Names to Regions 118
Audit Trail Logging 123

Introduction 1

Overview

The AIDA 2D Thin Layer Chromatography module (henceforth „2D TLC“) was designed for fast and efficient evaluation of signal images obtained from TLC plates, which have been developed in one direction in a first step and in a direction perpendicular to that in a subsequent step. At the beginning, the direction of the development is set for both steps. Then the TLC plate is defined on the image and the origin and front line are defined. All these steps can be performed using the mouse. However, these positions can also be defined using the preferences settings or by entering the appropriate values with the keyboard, which can be helpful for reproducible evaluations or to fasten the procedure for similar samples.

Following this procedure, regions are defined around the signals from the various compounds, which have been separated by the chromatography. The software provides several region types like rectangle, ellipsis or polygon. You can also draw a line by hand using the mouse to mark a region or get the region marked automatically by the software. Regions at suitable positions are defined as background. If an absolute calibration is needed, standards have to be measured for calculation of a calibration curve.

The results can be documented by a result report, which includes RF values for both directions and activities, if a calibration of the measured image has been performed. Additionally, all parts of the measured data and the evaluation can be printed out. It is also possible to export the images and the result report to other software packages for further data reduction.

Starting 2D TLC

To select the 2D TLC mode:

1 Click the **Evaluation** button in the toolbar.

A dialog box appears offering you a list of available evaluation modes.

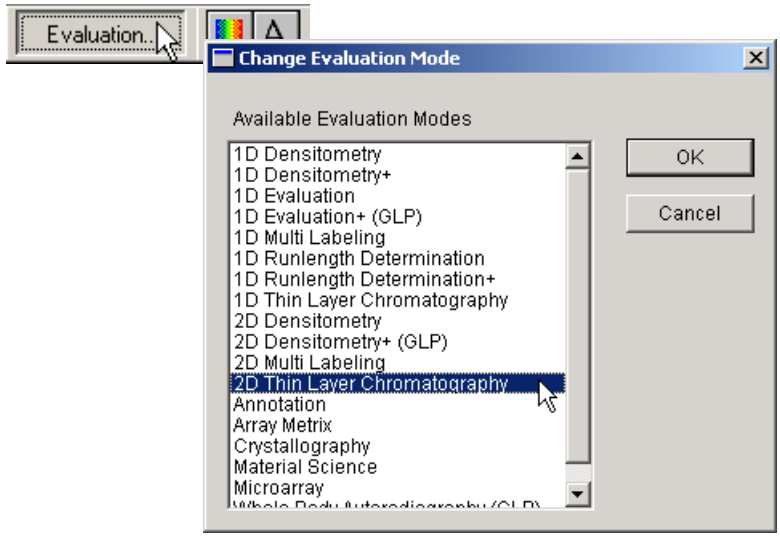


Figure 1-1 Changing Evaluation Mode

The list entries reflect the installed AIDA application modules.

2 Select the **2D Thin Layer Chromatography** list item und click **OK**.

Note – This evaluation mode is only available if you purchased the AIDA 2D TLC module. Note further that there are two possible 2D TLC evaluation modes in AIDA 2D TLC, one with GLP features (indicated by the acronym “GLP” in parentheses) and the other without those functionality. The **2D TLC (GLP)** evaluation mode is only available after establishing access control by applying the user registration (see the “Create User Registration” section below).

Create User Registration

Access control to AIDA might be required when working under Good Laboratory Practice (GLP) conditions. AIDA provides three different types of users, a System Administrator, Administrators and normal Users.

The *System Administrator* is a fixed account in AIDA which cannot be changed or deleted. When no password is set for the System Administrator, the user registration in AIDA is deactivated.

Administrators have the permission to create, modify and delete users or administrators. For GLP relevant modifications of the program settings, general administrator rights are required in AIDA.

Users can modify their own password. They have access to the normal functionality of AIDA.

When the user registration is activated, you must type your user name and password before you get access to the program.

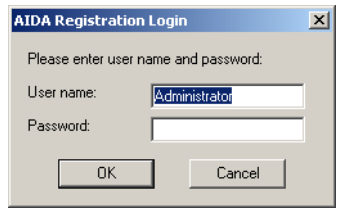


Figure 1-2 AIDA Registration Login Dialog Box

To activate the user registration in AIDA the first time, you must enter a password for the system administrator account.

To enter the password for the system administrator account:

1 Choose **Create User Registration** from the **Options** menu.

The **AIDA Registration User Management Setup** dialog box appears.

2 Type a password for the system administrator account in the **Password** text field of the **Aida Registration User Management Setup** dialog box and confirm the new password by retyping it in the **Confirm Password** field.

AIDA Registration User Management Setup
This dialog will activate the user management of this program.
From now on, the program will require a user login on each start.
Please enter an administrator password for the user management. Be sure not to forget this password!
Password:
Confirm password:
OK
Cancel

Figure 1-3 Entering Administrator Password

3 Click **OK** to apply the changes.

Now the user registration is activated and only registered operators have access to the program.

When the user registration is activated and the operator has administrator privileges, the **User Registration** command is selectable from the **Options** menu.

On choosing this command, the **AIDA Registration User Management** dialog box appears, allowing you to add new users or to modify or delete existing user accounts.

Figure 1-4 AIDA Registration User Management Dialog Box

To add new users:

1 On the **AIDA Registration User Management** dialog box click **Add** to open the **Add User** dialog box.

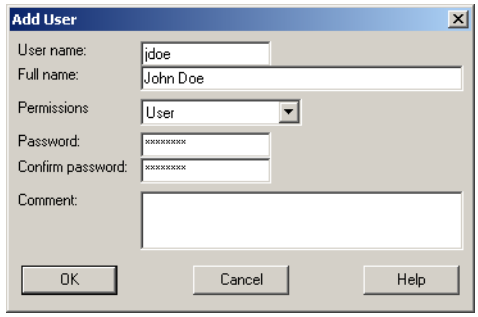


Figure 1-5 Adding Users

2 Type a user name, full name, and password for the new user, and confirm the password by retyping it in the **Confirm password** field.

A **User name** can consist of up to 31 characters and must be unique in the registration database.

The **Full name** is used whenever the program has to display the name of the operator (e.g. on print outs). It cannot be longer than 63 characters.

The user's **Password** must contain at least 4 characters (maximum 8 characters).

Note – In previous AIDA releases, the **Password** text field allowed to enter passwords with more than 8 characters without warning you, that internally only the first 8 characters of the password are processed.
In this release, the behavior of the text field has been adjusted to reflect this fact properly by restricting the input of password to at least 4 and at most 8 characters.
Users, whose old password exceeds 8 characters can use the first 8 characters of the old password as a valid new password without changing anything else (just type in the characters until the text field warns you with a beep).

---

3 Specify the user's permission level.

Currently two permission levels, **Administrator** and **User** (see above), are available.

4 Enter an optional comment for the account.

The **Comment** for a user account appears only within the user registration database.

5 Click **OK** to apply the changes.

To modify an existing user account:

1 On the **AIDA Registration User Management** dialog box click **Modify** to open the **Modify User** dialog box.

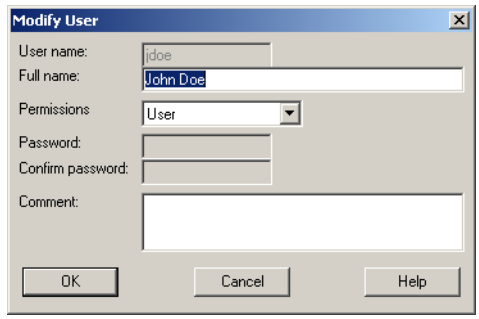


Figure 1-6 Modifying Users

2 Edit the database entries you want to change.

3 Click **OK** to confirm the changes.

If the operator has user permission, the **Change Password** command instead of the **User Registration** command is selectable from the **Options** menu.

To change your password:

1 Choose **Change Password** from the **Options** menu.

The **Change AIDA Registration Password** dialog box appears.

Figure 1-7 Changing Password

2 Type your current password in the **Old password** text box.

3 Type your new password in the **New password** text field and confirm it by retyping it in the **Confirm password** field.

4 Click **OK** to apply the changes.

At the end of the session you can choose to log on as a different user instead of exiting from the program.

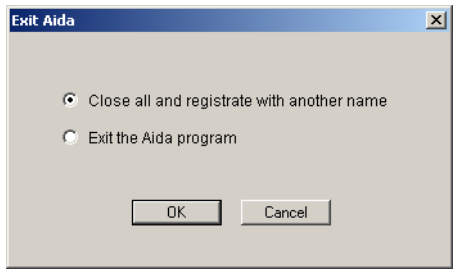


Figure 1-8 Exit Aida Dialog Box

Using 2D TLC 2

Data Windows in 2D TLC

In addition to the AIDA standard data windows **Image** and **Histogram** the following data windows are available in the **2D TLC** mode:

- Region Report
- Region Calibration
- Audit Trail

You can access these data windows by choosing the appropriate entry (**2D Region Report**, **Region Calibration** or **Audit Trail** respectively) from the **View** menu.

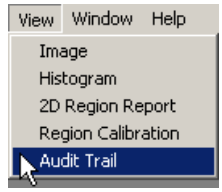


Figure 2-1 View Menu

Image Window in 2D TLC

All data are evaluated from the **Image** window. Although it might not always be on top, it is always open. The title bar of the **Image** window shows the full file path of the image.

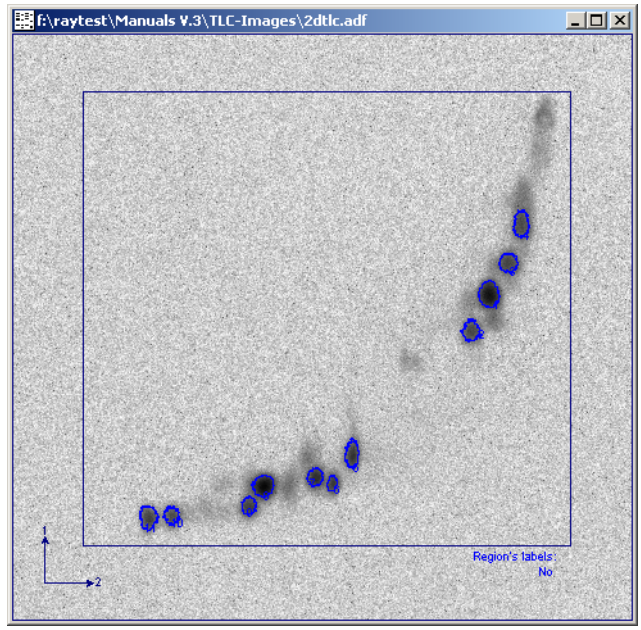


Figure 2-2 Image Window Example

You can copy the content of the **Image** window to the clipboard using the **Copy Content** command of the **Edit** menu. See the “Export Image” section in the “AIDA Image Analyzer Basic Concepts and Features User's Manual” for further explanation.

Contextual Menu of the Image Window

In 2D TLC, the contextual menu of the **Image** window looks slightly different depending on the type of overlay, you have chosen:

Single Selection:
If you have selected a single overlay (region) only, the contextual menu, that opens after right-clicking the respective object, provides you with the possible commands for this specific selection mode in addition to the standard editing functions like **Cut**, **Copy**, **Paste**, **Delete** and **Duplicate**. These include commands for labeling regions and setting integration limits.

Multiple Selection:
If you have selected multiple overlays (regions), the resulting contextual menu is considerably reduced (compared with the single selection contextual menu), showing only those commands available in this selection mode. The provided menu items form a subset of the functions available in the single selection mode.

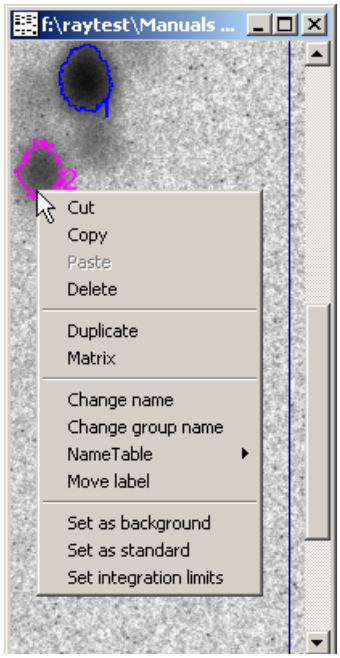


Figure 2-3 Contextual Menu (Single Object Selected)

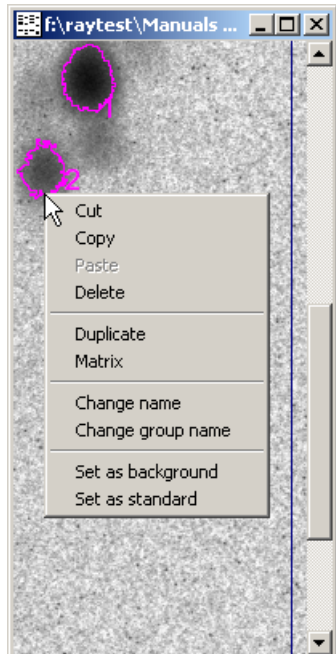


Figure 2-4 Contextual Menu (Multiple Objects Selected)

If no region is selected, only the basic editing functions of the standard contextual menu described in the “AIDA Image Analyzer Basic Concepts and Features User's Manual” will be accessible.

Note – All of the functions in these contextual menus are also accessible through different means (menus, buttons, toolboxes, windows). They will be explained in the respective sections of this manual. However, it is often more convenient to activate the function through the readily accessible background menu. This will make repetitive and routine tasks faster and more convenient.

Image Overlays

You can specify the label type and font you want to apply to the region overlays (lanes and bands) using the **Image Overlays** command of the **Options** menu.

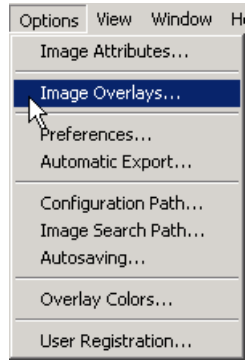


Figure 2-5 Options Menu: Opening the Image Overlays Dialog Box

After choosing **Image Overlays** from the **Options** menu, the **Image Overlays** dialog box opens allowing you to specify the type (**None**, **Number**, **Name**, **Free Choice**), font, font size, and font style (bold, italic, roman typeface on white background) for labeling. For details, see the appropriate sections below.

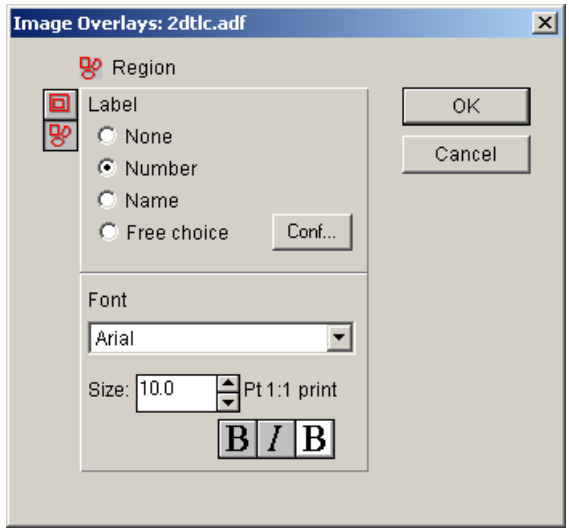


Figure 2-6 Image Overlays Dialog Box

Use the **2D TLC Calibration** tab of the **Image Overlays** dialog box to enable the drawing of the **Rf Fronts**. In addition, you can set the font size of the label using the **Label Size** combo box as well as the **Location of the Corner's Labels** via the appropriate pull-down menu.

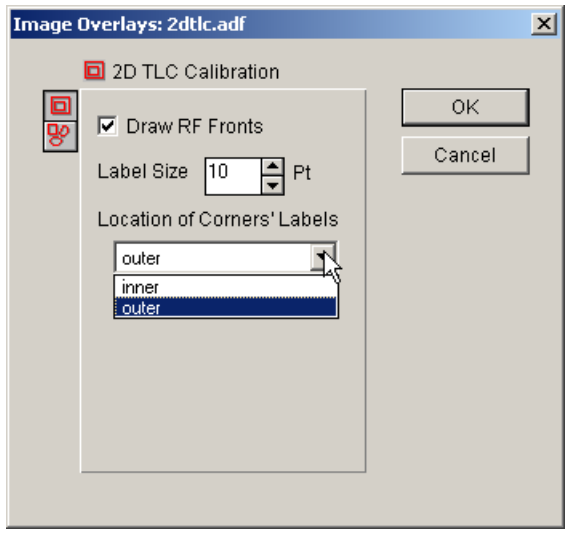
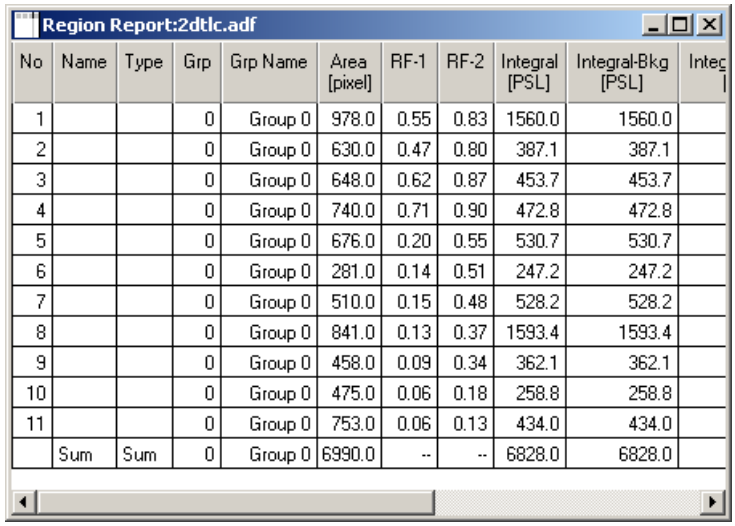


Figure 2-7 Image Overlays Dialog Box (2D TLC Calibration Tab)

Region Report Window

All information about the evaluation of the assigned regions can be found and configured to the specific needs in the **Region Report**.

The **Region Report** window is shown by clicking this button in the **Region Determination** toolbox or by choosing **2D Region Report** from the **View** menu.



No	Name	Type	Grp	Grp Name	Area [pixel]	RF-1	RF-2	Integral [PSL]	Integral-Bkg [PSL]	Integ
1			0	Group 0	978.0	0.55	0.83	1560.0	1560.0	
2			0	Group 0	630.0	0.47	0.80	387.1	387.1	
3			0	Group 0	648.0	0.62	0.87	453.7	453.7	
4			0	Group 0	740.0	0.71	0.90	472.8	472.8	
5			0	Group 0	676.0	0.20	0.55	530.7	530.7	
6			0	Group 0	281.0	0.14	0.51	247.2	247.2	
7			0	Group 0	510.0	0.15	0.48	528.2	528.2	
8			0	Group 0	841.0	0.13	0.37	1593.4	1593.4	
9			0	Group 0	458.0	0.09	0.34	362.1	362.1	
10			0	Group 0	475.0	0.06	0.18	258.8	258.8	
11			0	Group 0	753.0	0.06	0.13	434.0	434.0	
	Sum	Sum	0	Group 0	6990.0	--	--	6828.0	6828.0	

Figure 2-8 Region Report Window

Data Description

Available **Columns** in the **Region Report**:

Table 2-1 Columns Available in the Region Report Window

Column	Short Description
No	The number of the region.
Grp	The group number to which the region belongs (0 = no group selected for this region).
Name	The name of the region as it was assigned by the user.
Grp Name	The name of the group assigned by the user to which the region belongs.

signal unit and *length unit* = units of measurement, depending on the type of the imaging device used to obtain the image and the options set in the **Image Attributes** dialog box.

concentration unit and *quantity unit* = unit of measurement, specified by the user through calibration.

Table 2-1 Columns Available in the Region Report Window

Column	Short Description
Type	The type of the region (e.g. bkg – background)
Int. Limits	Integration limits for the region.
Position [*length unit*]	The position of the region as determined by x and y coordinates in the image.
Position X [*length unit*]	The position of the region as determined by x coordinate in the image
Position Y [*length unit*]	The position of the region as determined by y coordinate in the image
Area [*length unit* ^{2}]	The calculated area of the region .
Area [%]	The percentage of the region area compared to the reference row in the group of the region (e.g. the sum of all evaluated areas in a group).
Integral [*signal unit*]	The calculated intensity of the region .
Integral [%]	The percentage of the intensity of the region compared to the reference row in the group of the region.
Integral – Bkg [*signal unit*]	The background intensity is subtracted from the calculated intensity of the region to result in the signal intensity of the region. For each group of regions the background is determined in the following order: the local background area around the region, or the local background defined for the group, or the general background defined in group 0, whatever is available.
Integral – Bkg [%]	The percentage of the background corrected intensity of the region compared to the reference row in the group of the region.
Integral / Area [*signal unit* / *length unit*^{2}]	The intensity per area.
Integral / Area [%]	The percentage of the intensity per pixel of the region compared to the reference row in the group of the region.
Integral / Area – Bkg [*signal unit* / *length unit*^{2}]	The background intensity is subtracted from the calculated intensity of the region and this signal intensity is divided by the area.

signal unit and *length unit* = units of measurement, depending on the type of the imaging device used to obtain the image and the options set in the **Image Attributes** dialog box.

concentration unit and *quantity unit* = unit of measurement, specified by the user through calibration.

Table 2-1 Columns Available in the Region Report Window

Column	Short Description
Integral / Area – Bkg [%]	The percentage of the background-corrected intensity per pixel of the region compared to the reference row in the group of the region.
Std. Quantity [*quantity unit*]	The quantity of the region, as entered for the calculation of the standard curve. With the Quantity Standards the background corrected Intensity values of the regions are calibrated.
Std. Quantity [%]	The percentage of the quantity standard value compared to the reference row in the group of the region.
Recalc. Quantity [*quantity unit*]	A calculation of the quantity in the region, based on the current calibration curve.
Recalc. Quantity [%]	The percentage of the quantity for the region (determined on the basis of the calibration curve) compared to the reference row in the group of the region.
Std. Conc. [*concentration unit*]	The concentration of the region, as entered for the calculation of the standard curve. With the Concentration Standards the background corrected Intensity per Area values of the regions are calibrated.
Std. Conc. [%]	The percentage of the concentration standard value compared to the reference row in the group of the region.
Recalc. Conc. [*concentration unit*]	A calculation of the concentration in the region, based on the current calibration curve.
Recalc. Conc. [%]	The percentage of the quantity for the region (determined on the basis of the calibration curve) compared to the reference row in the group of the region .
RF-1	The retention factor (1st run)
RF-2	The retention factor (2nd run)

signal unit and *length unit* = units of measurement, depending on the type of the imaging device used to obtain the image and the options set in the **Image Attributes** dialog box.

concentration unit and *quantity unit* = unit of measurement, specified by the user through calibration.

If GLP support is turned on, the following additional columns are available:

Table 2-2 Additional Columns in the Region Report (GLP Support Enabled)

Column	Short Description
Name ID	The (unique) identifier for the **Name** of the region as defined in the general master nametable.
User ID	The user ID (**Login Name**) of the user who recorded the region (creation or last modification)
User Name	The user name (**Full Name**) of the user who recorded the region (creation or last modification)
Date and Time	Date and time when the region was recorded (creation or last modification)

The date and time format complies with the ISO 8601 specification (yyy-mm-dd hh:mm:ss+/-hh:mm).

The following additional rows can be found or created exclusively in the **Region Report**:

Table 2-3 Additional Rows in the Region Report

Sum	Displays the scientifically correct sum for the selected column (e.g. Σ(Intensity / Area), means ΣIntensities / ΣAreas). Different groups get individual sums.
Ttl (Total)	Displays the values of the selected column of Ttl region in the group. For group 0 the Ttl region is the entire image.
Remainder	Ttl – Sum

Quantity results in *italics* indicate that they lay outside of the calibration curve values and therefore are prone to significant error.

You can select the number and type of columns you want to display using the contextual menu of any column in the window (see below).

To change the column order:

1. Click the heading of the column to be moved.
2. Press the mouse button and drag to the desired position in the table.

3 Release the mouse button.

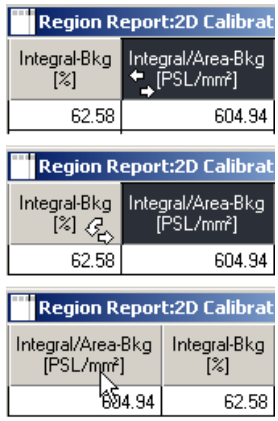


Figure 2-9 Changing Column Order

To change the column width:

1 Position the mouse pointer over the border of the column whose width you want to change.

2 Click and drag the border in the appropriate direction.

3 Release the mouse button:

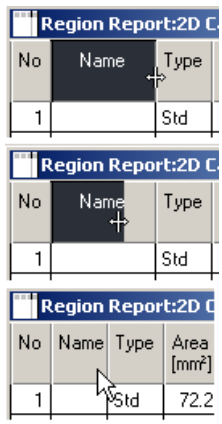


Figure 2-10 Changing Column Width

Contextual Menu of the Region Report Window

Each column in the **Result Table** has a contextual menu attached. To open the contextual menu, right-click on the column heading (gray area).

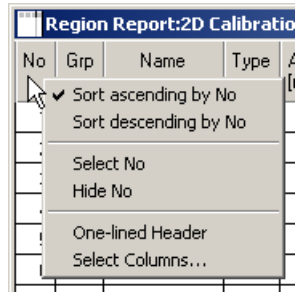


Figure 2-11 Contextual Menu of the Region Report Window

With the first two commands of the contextual menu, you can sort the table of the **Region Report** by any value column in ascending order (A to Z or zero to 9) or descending order (Z to A or 9 to zero). Just choose the appropriate menu item (**Sort Ascending by**/**Sort Descending by**).

The **Select**/**Unselect** commands of the contextual menu are used to select/deselect a column to export. The column heading of selected columns are highlighted.

To hide a column, select the **Hide** command from its contextual menu. You can recover hidden columns using the **Select Columns** command (see below).

To specify the decimal digits for the value output in a column, choose **Settings of** from the contextual menu and enter the value for the decimal digits in the dialog box displayed.

Figure 2-12 Setting Output Format for Columns

Use the **One-lined Header**/**Two-lined Header** command to reduce or expand the column heading by one line (the second line indicates the units of measurement).

To select/deselect the columns that should be displayed in the Region Report:

1 Choose **Select Columns**.

A dialog box appears displaying two lists (**Show Columns**/**Hide Columns**).

2 Select the columns you want to show or hide and click the appropriate arrow symbol to transfer the items between the two lists.

3 To deselect a particular item, just click it again.

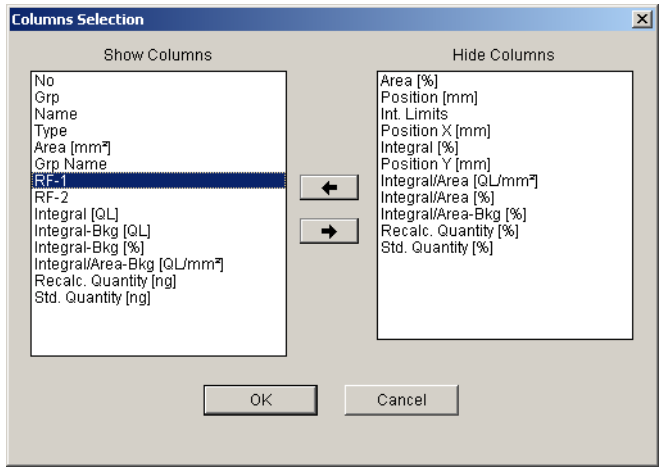


Figure 2-13 Columns Selection Dialog Box

In addition, each cell of the **Region Report** has its own contextual menu attached, providing commands for grouping of regions and standards as well as displaying/hiding of the special row types **Sum**, **Total**, **Remainder**.

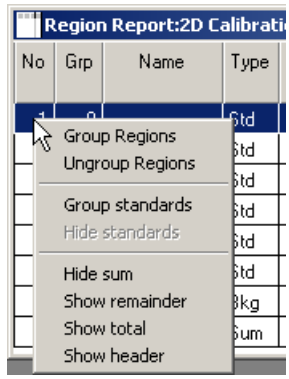


Figure 2-14 Contextual Menu of a Single Region Report Row

If multiple rows are selected, the contextual menu contains only the grouping commands applicable in this context.

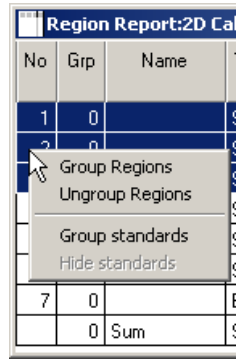


Figure 2-15 Contextual Menu of Region Report Rows (Multiple Selection)

The contextual menus of the **TYPE**, **NAME**, **STD**. **~** and **~ [%]** cells provide additional menu items for their respective context:

If a single row is selected, the contextual menu of the **Type** cells contains the additional commands **Set as Normal**, **Set as Background** as well as **Set as Total** for changing the region's type.

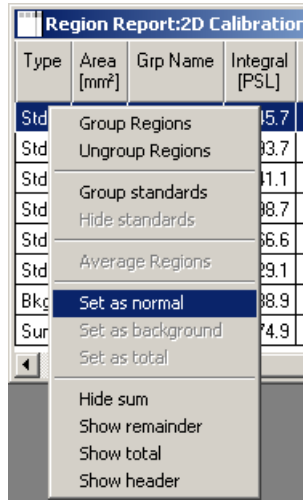


Figure 2-16 Contextual Menu of the Region Report's Type Cell (Single Selection)

If multiple rows are selected, the contextual menu of the **Type** cells contains the additional command **Average Regions**, which inserts an additional row for the average values of regions. The three above-mentioned menu items for changing the region type are unavailable in this context and therefore displayed in gray.

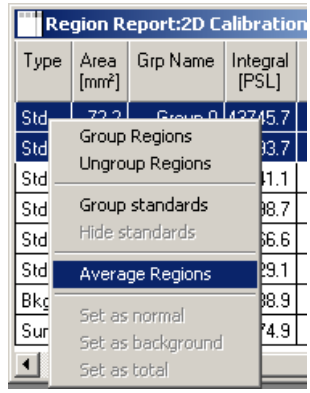


Figure 2-17 Contextual Menu of the Region Report's Type Cell (Multiple Selection)

The contextual menu of the **Name** cells contains the additional command **Change Name** for renaming the selected region.

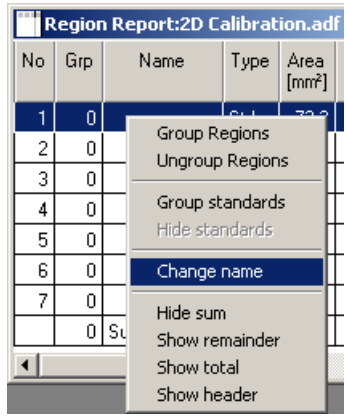


Figure 2-18 Contextual Menu of the Region Report's Name Cell

The additional menu item **Set Standard** of the **Std.~** row cells opens the **Region Calibration** dialog box, allowing you to change the standard value and unit for the selected region.

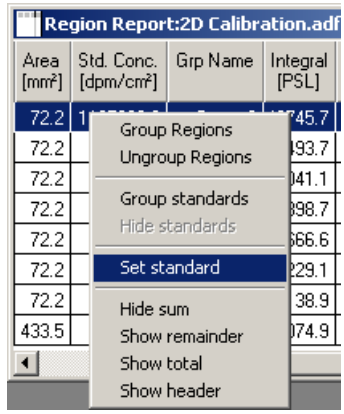


Figure 2-19 Contextual Menu of the Region Report's Std. Row Cell

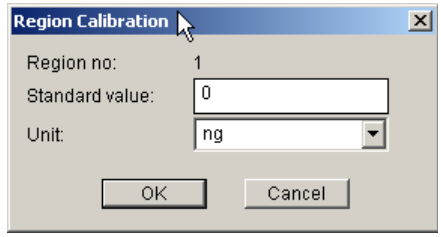


Figure 2-20 Region Calibration Dialog Box

The contextual menu of cells containing percentages provides an additional **Set to 100 %** item, used to set the value of the selected cell to 100 % and recalculating the percentages of all other rows in this column accordingly.

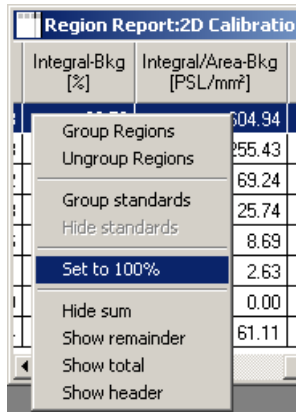
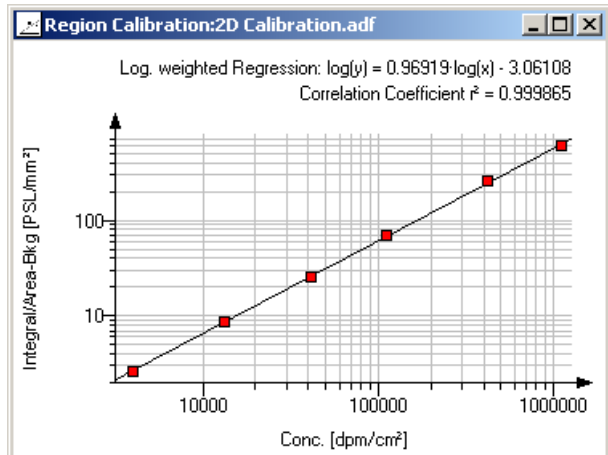


Figure 2-21 Contextual Menu of the Region Report's %. Cells

Region Calibration Window

To open the Region Calibration window:

- Choose **Quantity Calibration** from the **View** menu, *or*
- Double-click the miniaturized calibration curve display on the **Region Calibration** toolbox.



No	Integral/Area-Bkg [PSL/mm²]	Std. Conc. [dpm/cm²]	Recalc. Conc. [dpm/cm²]	
1	604.9	1107000.0	1067870.1	
2	255.4	424000.0	438707.8	
3	69.2	112000.0	114080.0	
4	25.7	41500.0	41100.5	
5	8.7	13350.0	13400.1	
6	2.6	3950.0	3908.4	

Figure 2-22 Region Calibration Window Example

The **Region Calibration** window is bipartite, the upper pane displays the curve of the calibration function, the underlying function, the correlation coefficient and the x-axis intercept. The lower one contains a table, listing the standards, their given and recalculated standard values etc. Additional columns can be displayed. Just right-click on the table heading and choose the **Select Columns** command from the contextual menu, that appears. The **Columns Selection** dialog box opens, allowing you to select the desired columns from the list.

Graphics Pane of the Regions Calibration Window

The curve shown in the upper part of the **Region Calibration** window in this example displays the background-corrected intensity per area as a function of the quantity (concentration) of the standard.

For a more detailed view of the plot, you can activate the zoom function:

To zoom one of the plot's axis:

1 On the toolbar, click the **Select** button.

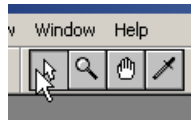


Figure 2-23 Select Button (Main Toolbar)

2 Click and drag one of the axis with the left mouse button pressed.

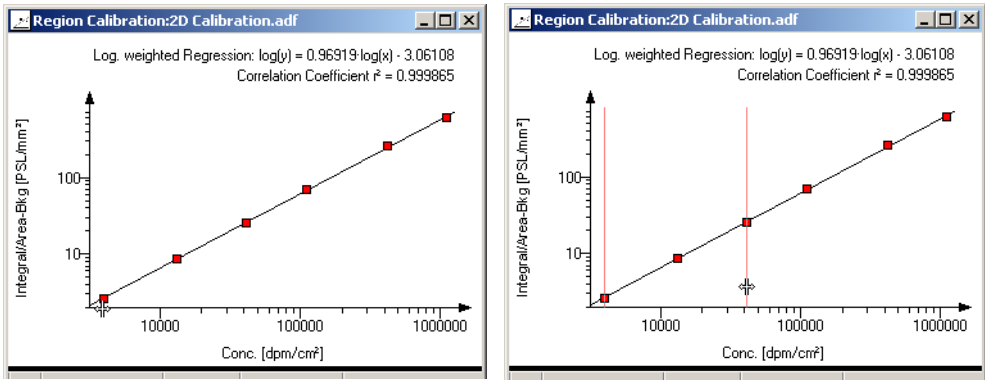


Figure 2-24 Clicking and Dragging the X-Axis

3 Release the button

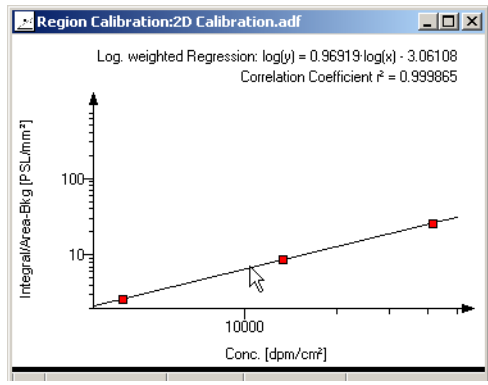


Figure 2-25 Zoomed Graph

To zoom a curve segment:

1 Click the **Zoom** button on the toolbar.

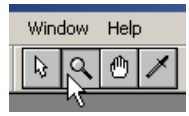


Figure 2-26 Zoom Button (Main Toolbar)

2 Draw a rectangle around the area of the plot you want to see in more detail.

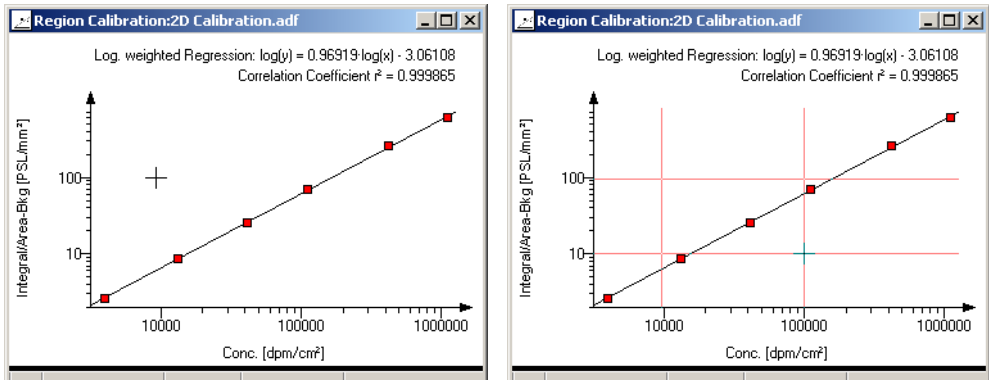


Figure 2-27 Specifying the Area to be Zoomed

3 Release the button.

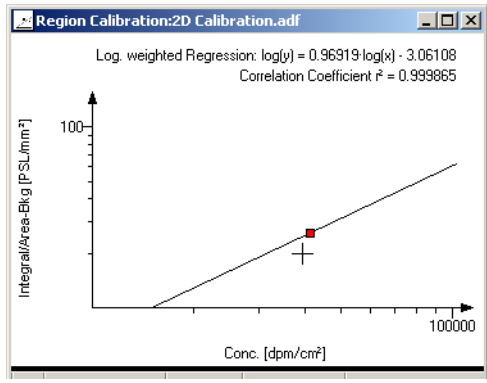


Figure 2-28 Zoomed Curve Segment

Contextual Menu of the Region Calibration Window

The contextual menu of the upper pane of the **Region Calibration** window contains two commands: **Scales** and **Grid**.

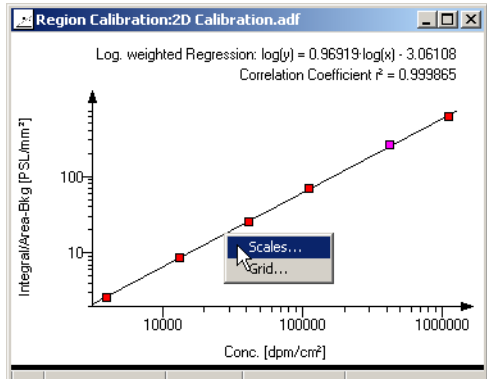


Figure 2-29 Contextual menu of the Region Calibration Window (Graphics Pane)

The **Scales** command allows you to configure the graphical output. After clicking the **Scales** command, the **Data Scaling** dialog box opens. Here the **Minimum** and **Maximum** value of the x- (Concentration) and y-axis (Intensity) can be selected. In addition, you can

turn on logarithmic representation and automatic scaling of either axis separately by clicking the appropriate option (**Logarithmic** and **Automatic**) below the **Minimum** and **Maximum** spin boxes.

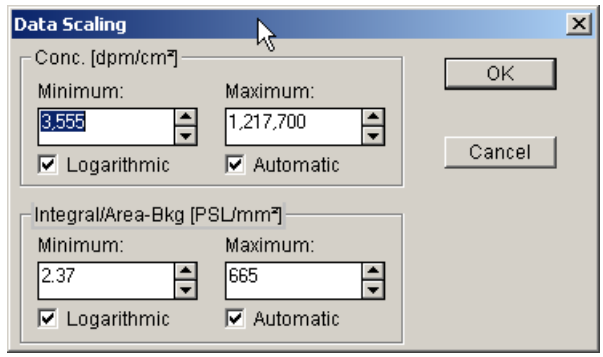


Figure 2-30 Data Scaling Dialog Box (Region Calibration Window)

The **Grid** command opens the **Grid** dialog box, which allows you to lay grids over both axis that are an extension of either the big or the small ticks on the axes.

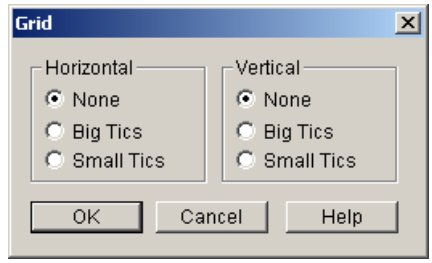


Figure 2-31 Grid Dialog Box

The table in the lower part of the **Region Calibration** window provides its own contextual menu:

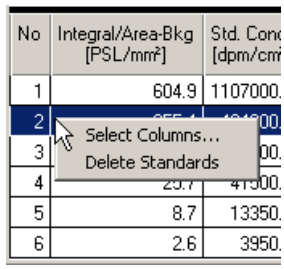


Figure 2-32 Contextual Menu of the Region Calibration Window (Table Pane)

The column headings are equipped with the standard contextual menus described in the "Region Report Window" section of this manual.

If you right-click on any of the table rows, the row's contextual menu opens, allowing you to **Select Columns** for displaying or **Delete Standards** from the table.

The following columns are available:

Table 2-4 Columns Available in the Region Calibration Window

Columns	Short Description
No	The number of the region
Name	The name of the region as it was assigned by the user.
Quantity Calibration	
Integral-Bkg [*signal unit*]	The background intensity is subtracted from the calculated intensity of the region to result in the signal intensity of the region. For each group of regions the background is determined in the following order: the local background area around the region, or the local background defined for the group, or the general background defined in group 0, whatever is available.

signal unit and *length unit* = units of measurement, depending on the type of the imaging device used to obtain the image and the options set in the **Image Attributes** dialog box.

concentration unit and *quantity unit* = unit of measurement, specified by the user through calibration

unit = quantity or concentration unit of measurement, depending on the argument

Table 2-4 Columns Available in the Region Calibration Window

Columns	Short Description
Std. Quantity [*quantity unit*]	The quantity of the region, as entered for the calculation of the standard curve. With the Quantity Standards the background corrected Intensity values of the regions are calibrated.
Recalc. Quantity [*quantity unit*]	A calculation of the quantity in the region, based on the current calibration curve.
Concentration Calibration	
Integral / Area – Bkg [*signal unit / length unit*^{2}]	The background intensity is subtracted from the calculated intensity of the region and this signal intensity is divided by the area.
Std. Conc. [*concentration unit*]	The concentration of the region, as entered for the calculation of the standard curve. With the Concentration Standards the background-corrected Intensity per Area values of the regions are calibrated
Recalc. Conc. [*concentration unit*]	A calculation of the concentration in the region, based on the current calibration curve.
Difference [*unit*]	The difference without sign between the entered standard and the recalculated value.
Rel. Deviation [%]	The relative difference with sign of the entered standard and the recalculated value compared to the standard value (= Deviation / Std. Conc. [Std. Quantity]).
Deviation [*unit*]	The difference with sign between the entered standard and the recalculated value (Recalc. Conc. [Recalc. Quantity] – Std. Conc. [Std. Quantity]).
Rel. Error [%]	The relative difference without sign of the entered standard and the recalculated value compared to the standard value (= Difference / Std. Conc. [Std. Quantity]).

signal unit and *length unit* = units of measurement, depending on the type of the imaging device used to obtain the image and the options set in the **Image Attributes** dialog box.

concentration unit and *quantity unit* = unit of measurement, specified by the user through calibration

unit = quantity or concentration unit of measurement, depending on the argument

If GLP support is turned on, the following additional columns are available:

Table 2-5 Additional Columns in the Region Calibration Window (GLP Support Enabled)

Column	Short Description
Name ID	The (unique) identifier for the **Name** of the region as defined in the general master nametable.
User ID	The user ID (**Login Name**) of the user who recorded the region (creation or last modification)
User Name	The user name (**Full Name**) of the user who recorded the region (creation or last modification)
Date and Time	Date and time when the region was recorded (creation or last modification)

The date and time format complies with the ISO 8601 specification (yyy-mm-dd hh:mm:ss+/-hh:mm).

Audit Trail Window

In the **Audit Trail** window you can view all GLP relevant changes to the currently active evaluation (as defined via the **Data Trail Settings for** controls of the **GLP Supporting Tools** toolbox), including timestamp, user-id, evaluation status and reasons for evaluation changes indicated by the current user.

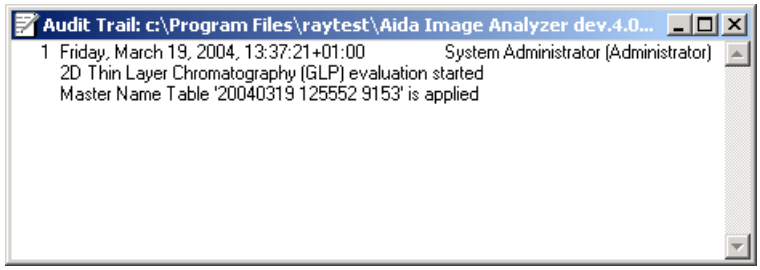

Audit Trail: c:\Program Files\raytest\Aida Image Analyzer dev.4.0...
1 Friday, March 19, 2004, 13:37:21+01:00 System Administrator (Administrator)
2D Thin Layer Chromatography (GLP) evaluation started
Master Name Table '20040319 125552 9153' is applied

Figure 2-33 Audit Trail Window

To open the **Audit Trail** window, either choose the **Audit Trail** command from the **View** menu, or alternatively click the **View Audit Trail** button in the **Data Trailing** pane of the **GLP Supporting Tools** toolbox.

Additional Toolboxes in 2D TLC

In addition to the standard AIDA toolboxes **Display Control** and **Publishing Layout**, the following toolboxes become available after selecting the **2D TLC** mode.

- TLC Calibration
- Region Determination
- Region Calibration
- GLP Supporting Tools

You can access these additional toolboxes from the **Evaluation** menu or by clicking the appropriate button on the toolbar.

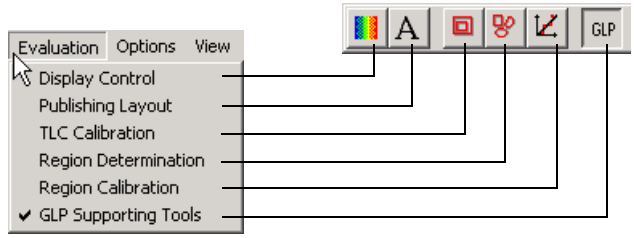


Figure 2-34 Mapping between Evaluation Menu Entries and Toolbar Buttons

2D TLC Calibration Toolbox

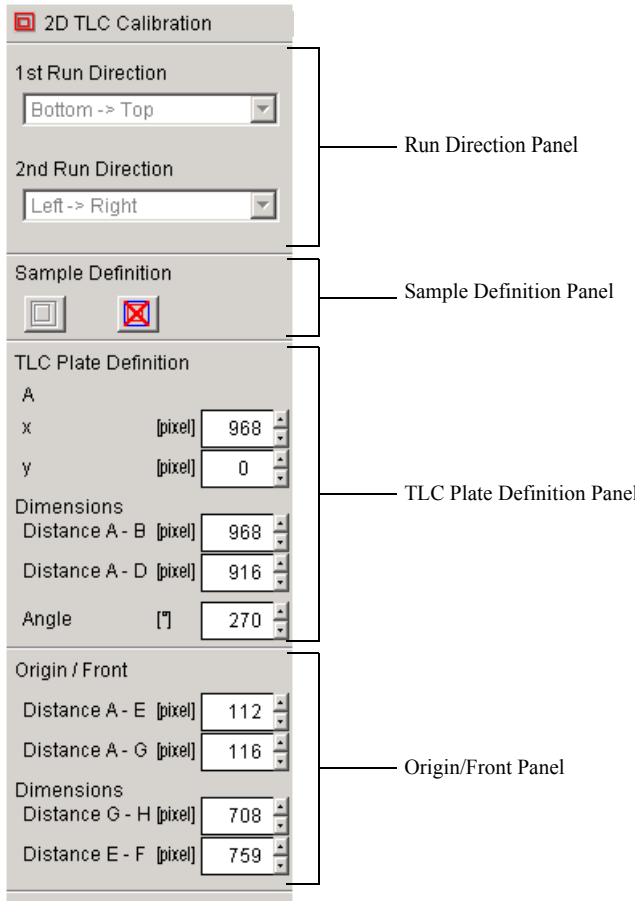
The **2D TLC Calibration** toolbox is used to set the TLC plate and the origin/front overlays.

To display the 2D TLC Calibration toolbox:

- On the main menu, click **Evaluation** and choose the **2D TLC Calibration** entry.

  or

- Click the **2D TLC Calibration** button on the toolbar.



Run Direction Panel

From the **1st Run Direction** and **2nd Run Direction** pull-down menus you can select the run directions used to develop the TLC plate from which the image was obtained. For **1st Run Direction**, two vertical (**Top -> Bottom** and **Bottom -> Top**) and two horizontal options (**Right -> Left** and **Left -> Right**) are available, whereas **2nd Run Direction** has only the two horizontal options **Right -> Left** and **Left -> Right**.

Sample Definition Panel

Use the two buttons of the **Sample Defintion** panel to create or delete the TLC plate overlay.

Figure 2-35 Sample Definition Panel

TLC Plate Definition Panel

The various combo boxes of the **TLC Plate Definition** panel allow you to set the position of the TLC plate overlay by entering the appropriate values for the **Position of Corner A** (the upper right corner of the plate) and the horizontal (**Distance A - B**) and vertical **Dimensions** (**Distance A - D**) of the plate together with its **Angle**.

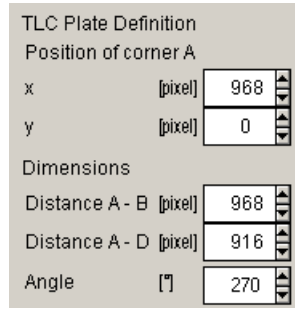


Figure 2-36 TLC Plate Definition Panel

Origin/Front Panel

The **Origin/Front** panel of the toolbox provides you with options to determine the position and dimension of the origin/front overlay. Enter the appropriate values for the origin (**Distance A - E** and **Distance A - G**) and the front line (**Distance G - H** and **Distance E - F**) of the plate.

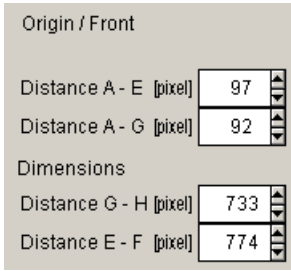


Figure 2-37 Origin/Front Panel

The units of measurement can be changed via the **Image Attributes** option of the **Options** menu.

Region Determination Toolbox

The controls of the **Region Determination** toolbox allow you to define regions in the image for signal intensity evaluation.

To display the Lane & Peak Determination toolbox:

- On the main menu, click **Evaluation** and choose the **Region Determination** entry.

  or

- Click the **Region Determination** button on the toolbar.

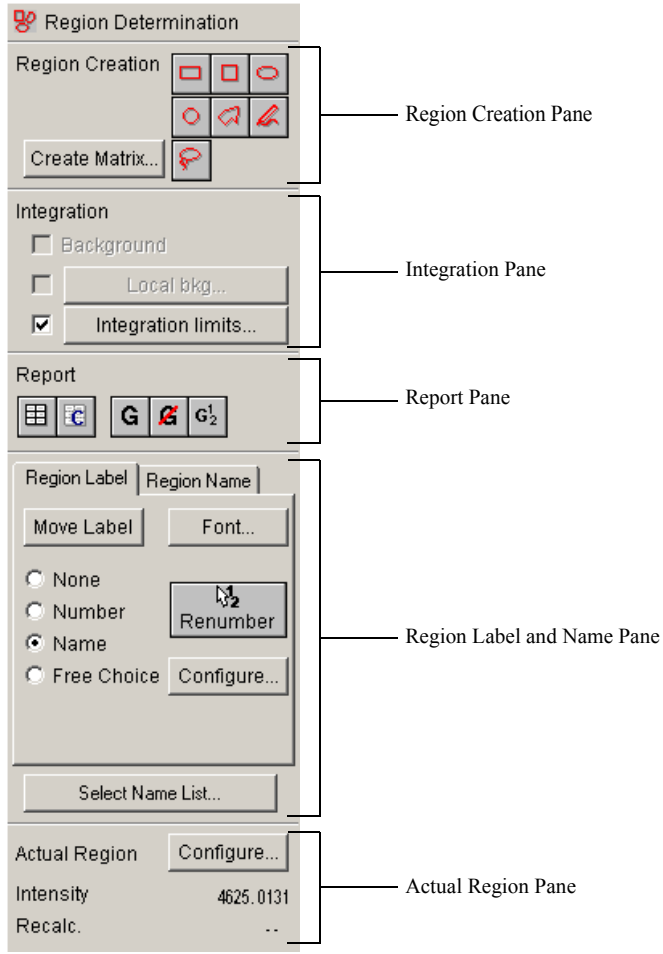


Figure 2-38 Region Determination Toolbox (Overview)

Region Creation Pane

The **Region Creation** pane of the toolbox is used to mark various areas in the image.

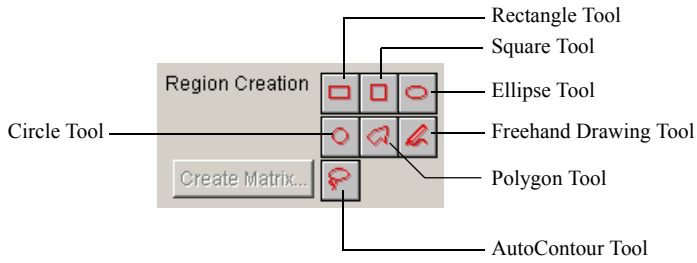


Figure 2-39 Region Creation Pane (Overview)

Areas of different shapes (rectangles, squares, ellipses and circles) can be marked.

To create a region:

1. Click on the symbol of the desired shape.
2. Click at the upper left corner of the area, hold down the mouse button and drag it to the desired lower right end of the shape.
3. Release the mouse button.

The area can be reshaped by moving the handles .

Clicking within the area changes the handles to this symbol , now the object can be rotated around its center. Clicking within the area again changes the handles back. When the overlay has received its final shape and tilt, right-click or press the ENTER key to save the object and go on with the next action.

Polygon Tool: This Tool allows you to draw an enclosure by clicking at multiple subsequent points surrounding the object and finalizing the encircling with a double-click.

Freehand Drawing Tool: Click at a start point and drawing the outside shape of the object while holding down the mouse button. On release, the object is closed automatically.

The areas can be changed in size by moving the handles around.

The corner handles are used for total size change, the side handles are used for size changes in the direction of the handle. Clicking in the middle of the object switches to the turning mode as outlined above. A third click will switch to the re-shape modus where all edges of the object are shown with an individual handle.

The **AutoContour Tool** connects pixels of similar intensity to encircle an object automatically:

1. After activating the function, click on the border area of a region within the image that you would like to encircle and drag the mouse pointer slowly to the side of the object.
2. Try to drag the cursor around (with the mouse button pressed) until the area is completely encircled.
3. Release the mouse button.
4. Remember to press ENTER or the right mouse button after the area has been correctly assigned.

To place multiple identical objects on top of the image, use the **Create Matrix** button to open the **Matrix Options** dialog box.

This function is useful for the analysis of multi-well plates or dot blots were signals of identical shape and distance have to be analyzed.

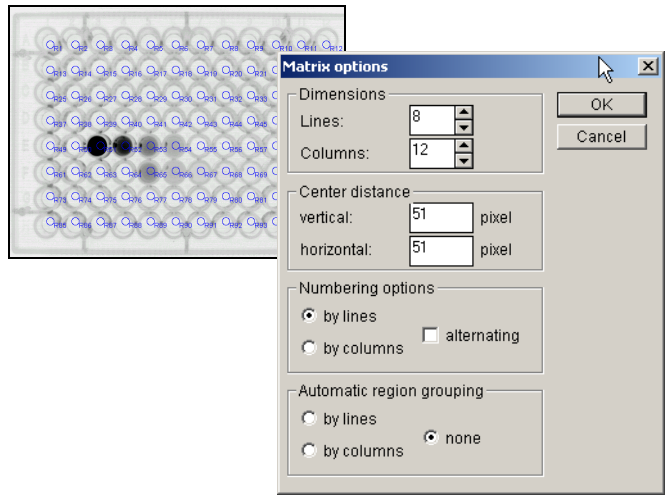


Figure 2-40 Matrix Options Dialog Box With Application Example

Dimension: In the **Dimension** pane of the **Matrix Options** dialog box you can enter the number of objects to be created in x- (**Lines**) and y-(**Column**) direction of the matrix.

Center Distance: In the **Center Distance** part of the dialog box enter the **Vertical** and **Horizontal** distance (mid to mid) between objects in the matrix.

Numbering Options: The regions in the matrix can be numbered **By Lines** (from left to right) or **By Column** (from top to bottom). Clicking the **Alternating** option results in numbering the first line from left to right, the second line from right to left and so on. The **Alternating** numbering is also available for columns.

Automatic Region Grouping: The resulting regions can also be grouped together **By Lines** or **By Columns** if they represent multiple independent analysis points for example.

Integration Pane

The **Integration** pane of the **Region Determination** toolbox is used to define the background calculation for the integration of regions. Any region that is marked with the **Background** option turned on is taken as an example for the background signal. Multiple background areas can be assigned and will be averaged.

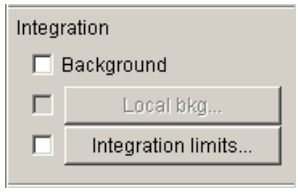


Figure 2-41 Integration Pane

To assign a frame around the active region as a local background, select the checkbox next to the **Local Bkg** button. The general background calculated by the **Background** function is ignored for regions that have a local background assigned to them. This function is not advised for blurred spots of usual 2D gel applications because part of the actual sample might be mistaken for local background. Clicking the **Local Bkg** button opens the **Local Bkg Settings** dialog box, where a shape and size (in pixels) can be selected for the local background frame.

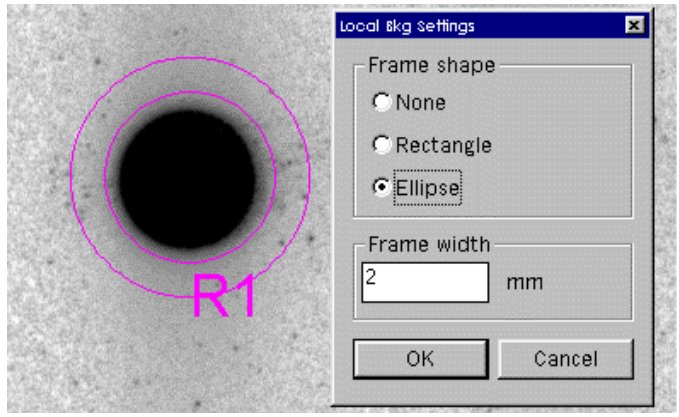


Figure 2-42 Local Bkg Settings Dialog Box

The **Integration Limits** option of the **Integration** pane allows you to integrate only those pixels that lie within a defined intensity range. Thus a region that has some noise (dirt) on it. This is useful for eliminating cavities from the surrounding tissue. Since the level of intensity is different, the surrounding region can be integrated without the unwanted signal originating from the cavity. The intensity borders can be assigned via the **Change Integration Limits** dialog box.

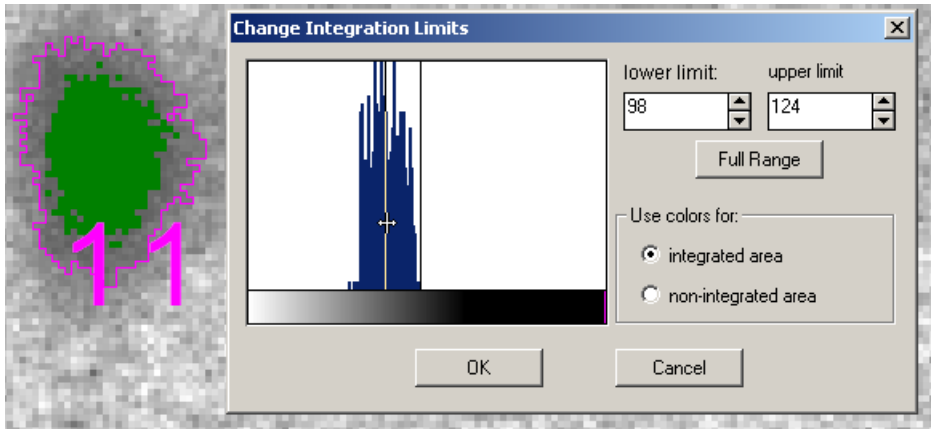


Figure 2-43 Change Integration Limits Dialog Box

The intensity histogram is used to set the lower (left) and upper (right) intensity levels that will be used for the integration. This is done by dragging the vertical black lines from the right and left end of the histogram to the desired position, or by entering the appropriate values in the designated fields (**Lower Limit**, **Upper Limit**). As a consequence the pixels that have a lower intensity or a higher intensity than the designated integration area (peaks on the left or right of the margins shown in the example) will not be used for integration. The choice of coloring the **Integrated Area** or the **Non-integrated** area to visualize the effect can be selected in the **Use Colors for** field.

Report Pane

The **Report** pane of the **Region Determination** toolbox is used to activate and configure the report that summarizes the integration results.

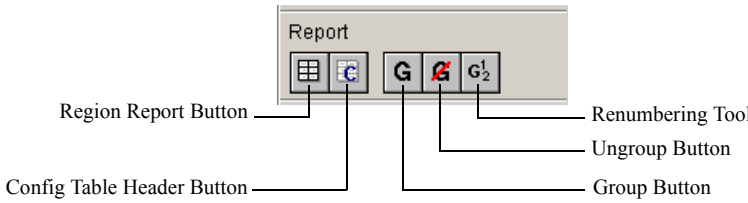


Figure 2-44 Report Pane

Clicking the **Region Report** button activates the display of the report (same as the **Region Report** function in the **View** menu).

With the **Config Table Header** button the table header name for the columns **Integral**, **Integral/Area**, **Quantity** can be configured.

The following three buttons are used to group, ungroup and renumber (in this order) groups and regions. Every area can only belong to one group. Grouped areas will get a common summary line at the end of all integrated regions in the region report:

Groups can be formed by selecting multiple regions and clicking the **Group** button.

Selected regions can be removed from their group by selecting the **Ungroup** button.

Using the **Renumbering Tool**, all groups are renumbered in sequential order. This avoids gaps in numbers which are caused by ungroup processes.

Region Label and Name Pane

The **Region Label and Name** pane is used to control the labeling and name of regions.

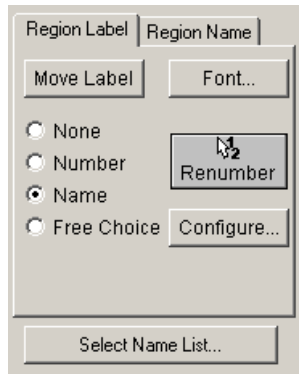


Figure 2-45 Region Label and Name Pane

Region Label tab: You can turn off labeling (**None** radio button), select a number as current label (**Number** radio button) or display the name of the region instead (**Name** radio button). Alternatively you can select a label freely from the column list displayed after clicking the **Free Choice** option and then clicking the **Configure** button. The contents of this list is identical to the one from the **Columns Selection** dialog box (cf. the Region Report pane of this manual).You can change the position of a region label using the **Move Label** button to increase visibility:

To move a label to a desired destination:

1 Select the region with a mouse click.

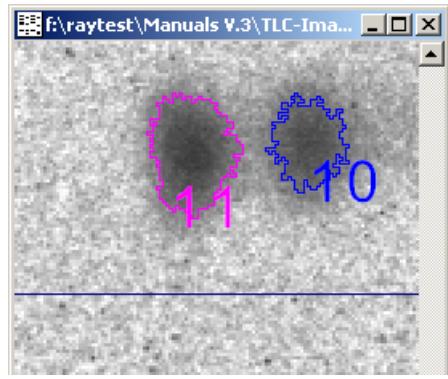


Figure 2-46 Selecting Region

2 Click the **Move Label** button on the **Region Label and Name** pane of the **Region Determination** toolbox.

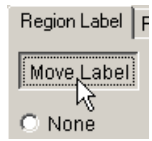


Figure 2-47 Move Label Button

The label of the previously selected region turns its color from magenta to red.

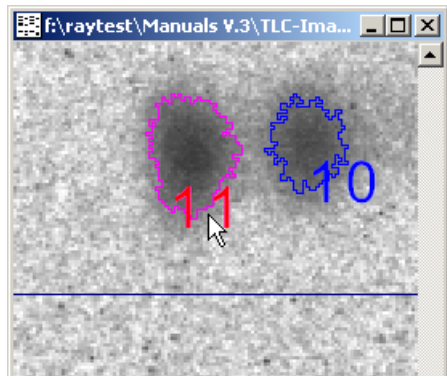


Figure 2-48 Activated Label

3 Drag the label to its designated location.

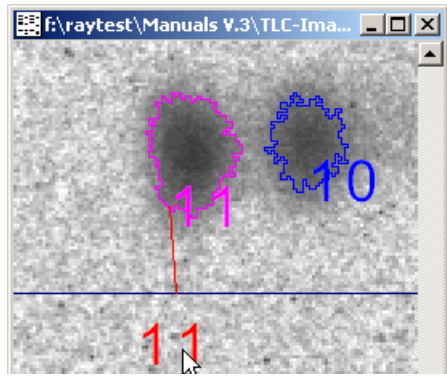


Figure 2-49 Moving Label

4 Confirm the action by clicking the right mouse button, or alternatively by pressing the ENTER key on your keyboard.

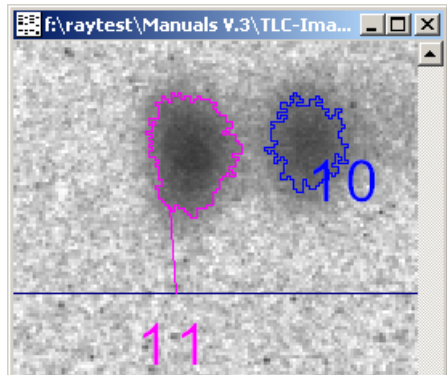


Figure 2-50 Label Repositioning Confirmed

You can select the **Font** type and **Size** of the characters as well as their font style (bold (**B**), italic (**I**) and roman typeface on white background) using the **Font** button. The **Choose Font** dialog box is displayed, allowing you to specify the font options for the label.

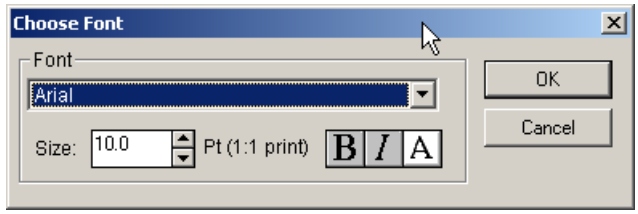


Figure 2-51 Choosing Font Properties

The regions can be renumbered if necessary by activating the **Renumber** function. This function opens the **Renumber Regions** dialog box. The numbers are displayed subsequently in a combo box and can be assigned to the desired regions by simply clicking on them.

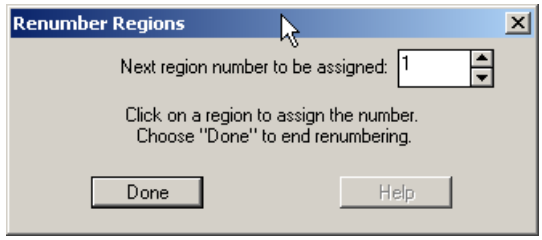


Figure 2-52 Renumber Regions Dialog Box

The **Region Name** tab controls are used to assign names to the various regions.

To assign names to regions:

1. Select a region on the image.
2. Click the **Region Name** tab.

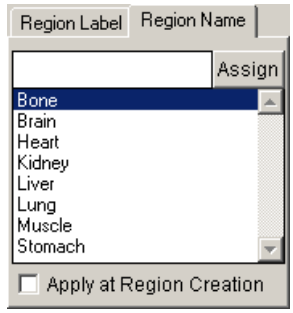


Figure 2-53 Region Name Tab

Common names can be entered via a text box into a list that can facilitate the designation of redundant names ('Negative Control', 'Positive Control', 'Standard', 'Background', etc.).

3. Type a name in the text box or select one from the list below the text box.
4. Click **Assign**.

5 (Optional) Click the **Apply at Region Creation** option to assign the names in the list to any newly created region one after another in the order of their appearance in the list.

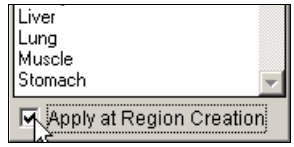


Figure 2-54 Selecting Apply at Region Creation Checkbox

To edit the list of names:

- Click the **Select Name List** button below the **Region Name** tab,

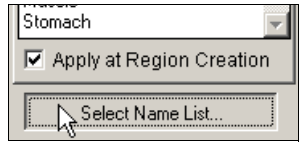


Figure 2-55 Select Name List Button

This opens the **Region Nametables** dialog box.

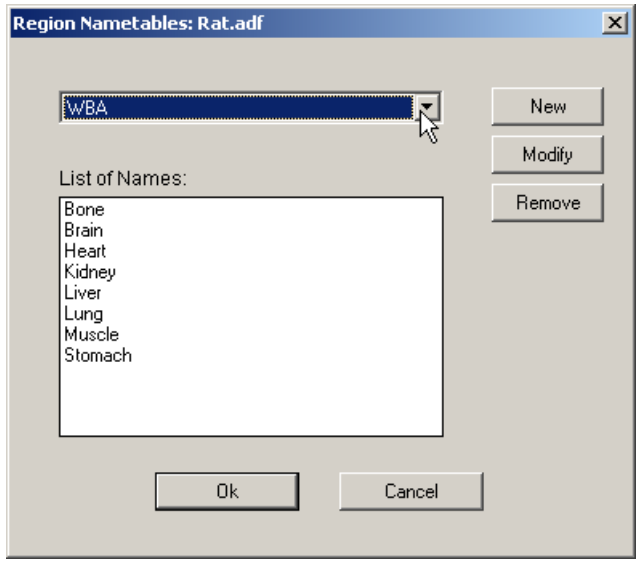


Figure 2-56 Region Nametables Dialog Box

Using this dialog box, you can:

- create a new list of names by clicking the **New** button, or,

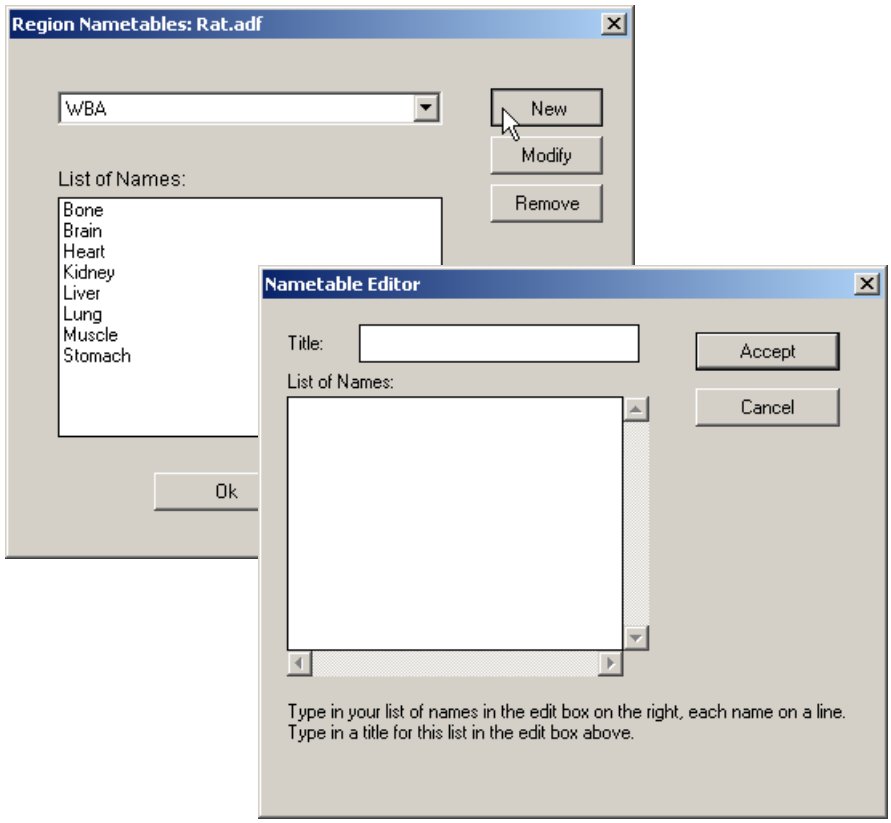


Figure 2-57 Nametable Editor (Creating New List of Names)

- edit an existing name table by choosing **Modify**.

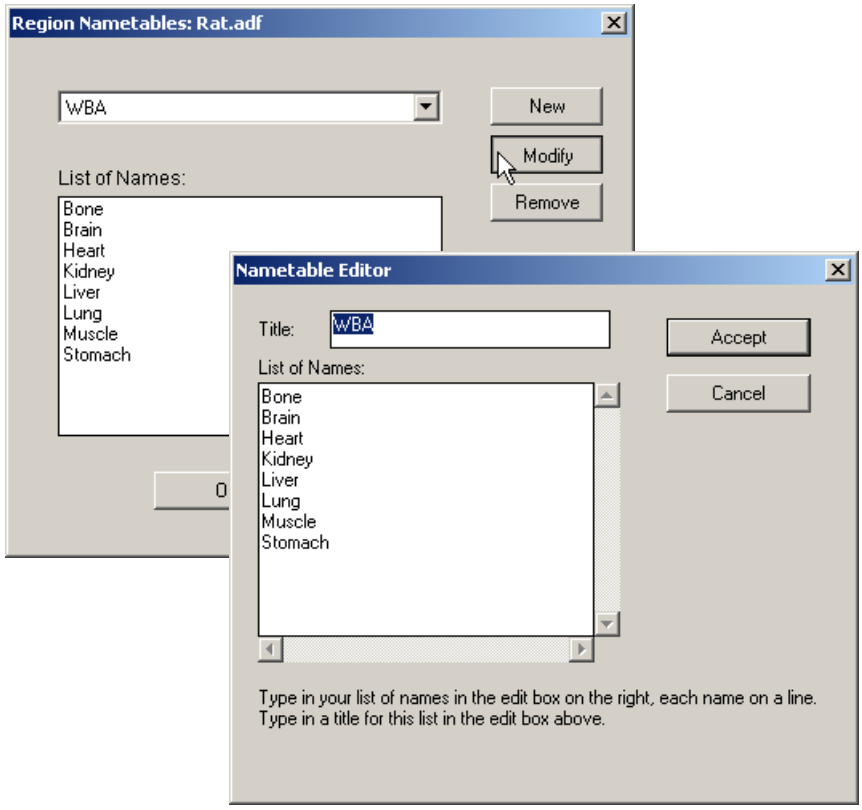


Figure 2-58 Nametable Editor (Editing Existing Name Table)

Note – If a master nametable is applied, the procedure is slightly different from the one just described. Please refer to the “Creating and Editing Work Nametables” section for instructions.

Actual Region Pane

The **Actual Region** pane provides information about the selected region.

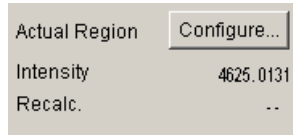


Figure 2-59 Actual Region Pane

Use the **Configure** button to add or delete categories from the list shown below the **Configure** button. This opens the **Column Selection** dialog box described in the Region Report section of this manual.

Region Calibration Toolbox

The controls of the **Region Calibration** toolbox allow you to perform the calibration of the 2D densitometer. For the calibration, reference regions for the creation of standard curves are necessary on the same image..

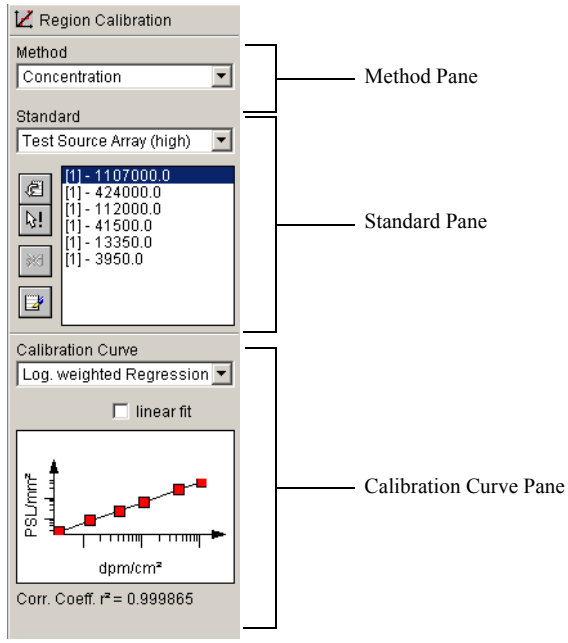


Figure 2-60 Region Calibration Toolbox (Overview)

To display the Region Calibration toolbox:

- On the main menu, click **Evaluation**, and then click **Region Calibration**,

  or

- Select the **Region Calibration** button on the toolbar.

Method Pane

The drop-down menu of the **Method** control pane is used to specify the calibration method (**Quantity** or **Concentration**).

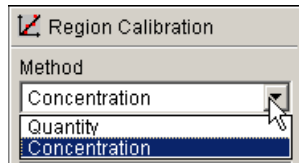


Figure 2-61 Method Drop-Down Menu

Selecting **Quantity** will result in the analysis of integrated intensities of all pixels in the defined region whereas **Concentration** will compare the average intensity in the regions.

Standard Pane

Using the controls of the **Standard** pane you can assign standards to selected regions.

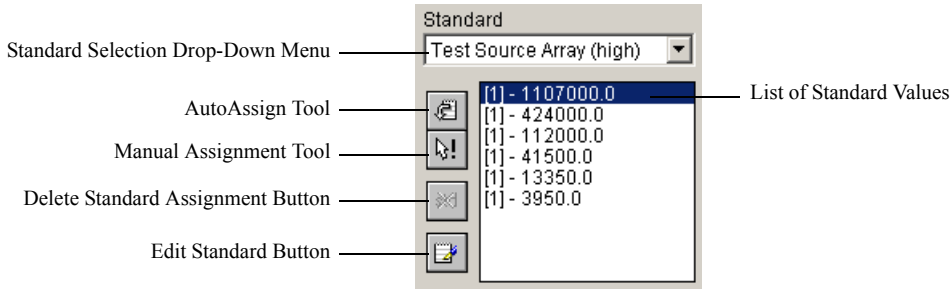


Figure 2-62 Standard Pane

From the **Standard** drop-down menu a predefined list of standard values can be selected. The specified standard values are displayed in the pane below the **Standard** drop-down menu.

Beside this pane there are four buttons:

AutoAssign Tool: This button allows you to subsequently assign all values in the list by clicking with the mouse on the appropriate region. Thus the first value (1107000.0) is assigned to the first clicked region, the second value (424000.0) to the secondly clicked region and so on.

Manual Assignment Tool: The second button allows you to assign any value to the clicked region by entering the appropriate value and unit for the selected region in the **Region Calibration** dialog box that appears.

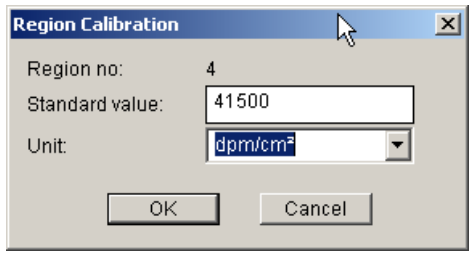


Figure 2-63 Region Calibration Dialog Box

Delete Standard Assignment Button: By clicking this button, all calibration values of selected regions can be canceled.

Edit Standard Button: The last of the four buttons is used to enter new lists of standard values. Clicking this button opens the **Quantity Standards** (or **Concentration Standards**) dialog box, which is used to enter a new list or to modify an existing one. To create a new list, name the list in the **Standard** text box and specify its **Values**, **Unit** and **Precision** (displayed fraction digits).

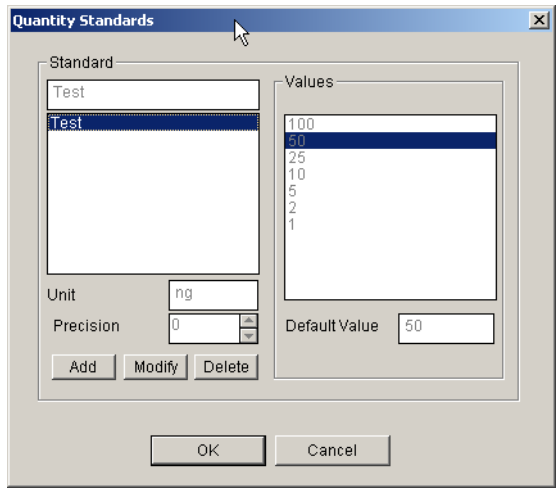


Figure 2-64 Quantity Standards Dialog Box

The **Add**, **Modify** and **Delete** buttons are used to alter lists in the same box.

All used standards should be saved for future use. This is also true for one-time standards because evaluation get frequently re-done, which means that the standard values are lost unless entered in the list.

Calibration Curve Pane

In the **Calibration Curve** pane of the **Region Calibration** toolbox the mathematical calculation of the standard curve can be selected and the result is displayed in the graph at the lower end of the toolbox.

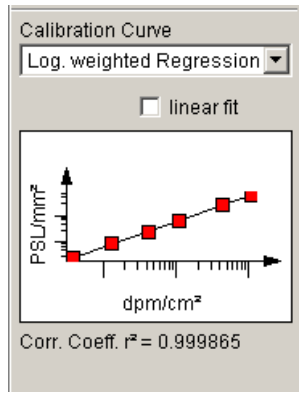


Figure 2-65 Calibration Curve Pane

The **Calibration Curve** drop-down menu provides the following functions:

- Linear Interpolation
- Linear Regression
- Logarithmic Regression
- Log. Weighted Regression

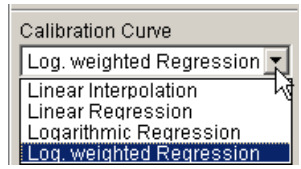


Figure 2-66 Selecting Calibration Curve Type

Linear Interpolation calculates lines to join each data point.

Linear Regression optimizes a linear graph so that the deviation of the actual points from the curve is minimized.

Logarithmic Regression is used to determine the standard curve with logarithmic characteristics, which is found in many saturating effects (e.g. absorption).

Log. Weighted Regression can be described as linear regression using a double logarithmic scaling. The result is a better optimization of the curve fit for the smaller values, instead of a better fit for the higher values (**Linear Regression**).

If you choose **Linear Interpolation**, **Linear Regression** or **Logorithmic Regression**, you can select the **(0,0) Origin** option to force the curve through the origin. For **Log. Weighted Regression** select the **Linear fit** option to force the curve to a linear function.

The correlation coefficient (**Corr. Coeff.**) of the estimation is shown below the curve. A value of 1 identifies a perfect correlation, a value of 0 indicates full independence of values. Good standard curves should have value very near to 1.

Double-clicking on the graphics pane opens the **Region Calibration** window (see the "Region Calibration Window" section of this manual for details).

Sometimes a warning will be displayed below the graphics pane, stating 'bkg not determined', to indicate that no background region has been assigned yet. It can also indicate the lack of a local background for some regions.

GLP Supporting Tools Toolbox

The **GLP Supporting Tools** toolbox is used to specify all GLP relevant settings.

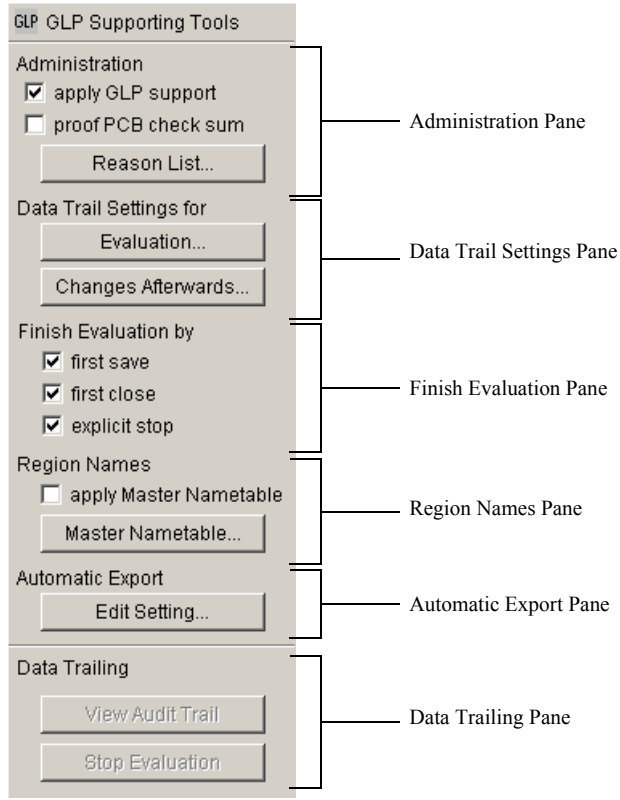


Figure 2-67 GLP Supporting Tools Toolbox (Overview)

To display the GLP Supporting Tools toolbox:

- On the main menu, click **Evaluation**, and then click **GLP Supporting Tools**,

  or

- Select the **GLP Supporting Tools** button on the toolbar.

Note – To configure the GLP support, administrator rights are required. Therefore make sure that you are logged in as system **Administrator** to change the GLP settings. If you are logged in as normal user, the **GLP Supporting Tools** toolbox is considerably reduced, providing you with the **Data Trailing** controls only.

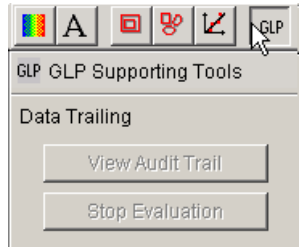


Figure 2-68 GLP Supporting Tools Toolbox (User Account)

Administration Pane

In the **Administration** pane of the **GLP Supporting Tools** toolbox you can configure all GLP support settings.

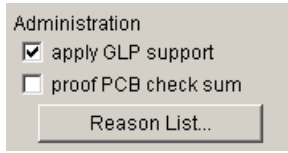


Figure 2-69 Administration Pane (Initial State)

Since this is only possible, if no evaluation has been started, ensure that no image is loaded into AIDA yet.

To enable GLP support:

- Click the **Apply GLP Support** option.

The **Proof PCB Checksum** option enables the PCB image authentification feature.

Note – Older PCB images do not incorporate checksums. So if you want to apply the **GLP Supporting Tools** controls to those images, make sure that this option is disabled.

The **Reason List** button opens the **Audit Trail Reason List** dialog box for predefining evaluation change reasons.

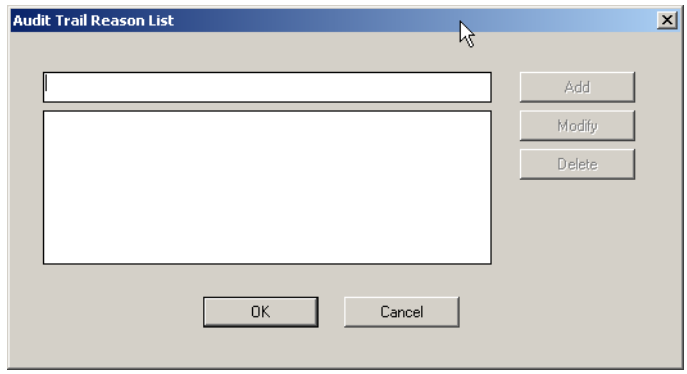


Figure 2-70 Audit Trail Reason List Dialog Box

Data Trail Settings Pane

The behavior of the GLP recording function is configured using the **Data Trail Settings for** controls:

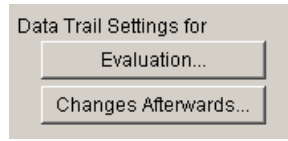


Figure 2-71 Data Trail Settings Pane

1 Click the **Evaluation** button to set the recording options for changes during evaluation.

The **Audit Trail Configuration: Evaluation** dialog box appears.

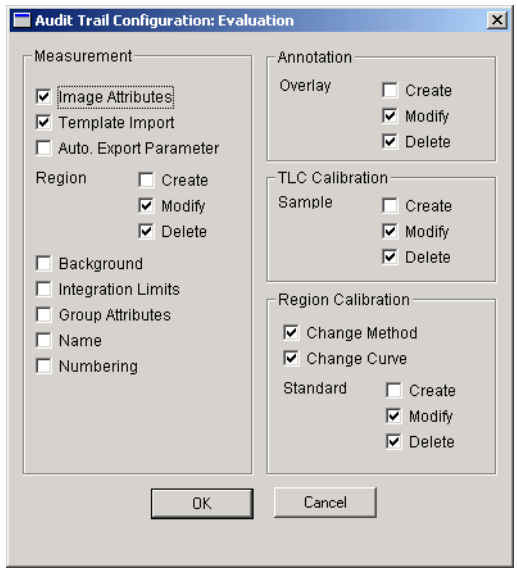


Figure 2-72 Audit Trail Configuration: Evaluation

2 Specify which user actions should be recorded.

This includes for example the modification/deletion of annotations, changing calibration method and/or calibration curve or modifying/deleting regions.

If the working operator performs one of the actions checked in the **Audit Trail Configuration** dialog box, a dialog box pops up, prompting the user to give reasons for the desired change.

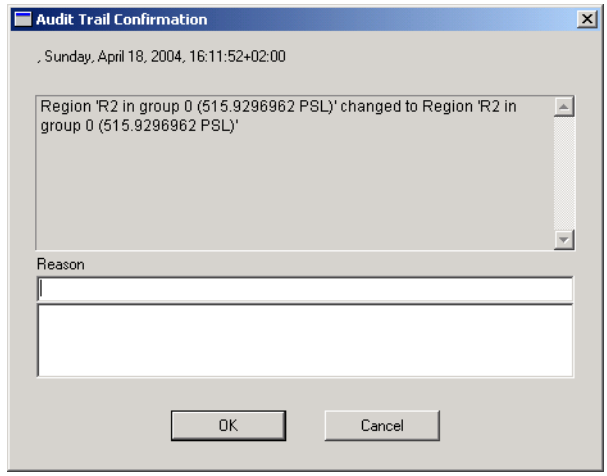

Audit Trail Confirmation
, Sunday, April 18, 2004, 16:11:52+02:00
Region 'R2 in group 0 (515.9296962 PSL)' changed to Region 'R2 in group 0 (515.9296962 PSL)'
Reason
OK
Cancel

Figure 2-73 Audit Trail Confirmation Dialog Box

The desired modification is blocked until the user confirms the action by entering the intention for the change explicitly in the **Audit Trail Confirmation** dialog box.

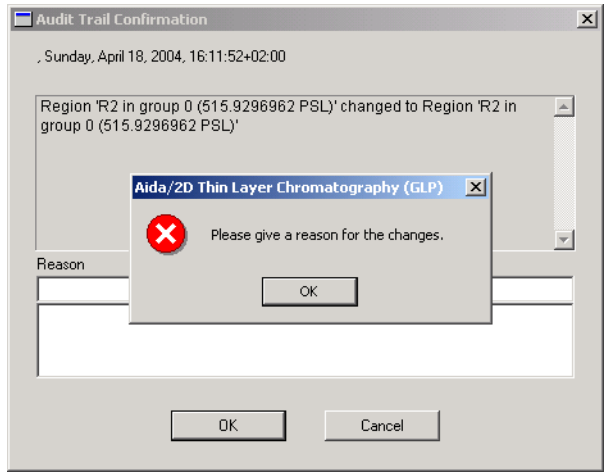

Audit Trail Confirmation
, Sunday, April 18, 2004, 16:11:52+02:00
Region 'R2 in group 0 (515.9296962 PSL)' changed to Region 'R2 in group 0 (515.9296962 PSL)'
Aida/2D Thin Layer Chromatography (GLP)
Please give a reason for the changes.
OK
Reason
OK
Cancel

Figure 2-74 GLP Error Message Box

As for changes during evaluation you can also set recording options for changes afterwards. Just click the **Changes Afterwards** button on the **Data Trail Settings for** pane. The **Audit Trail Configuration: Changes Afterwards** dialog box appears, allowing you to select the actions to be watched by the GLP system.

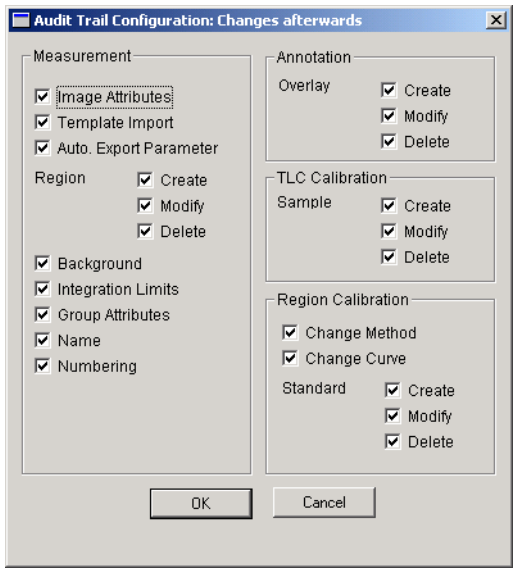


Figure 2-75 Audit Trail Configuration: Changes Afterwards Dialog Box

Finish Evaluation Pane

The checkboxes of the **Finish Evaluation by** pane allow you to specify the user action which indicates the end of an evaluation.

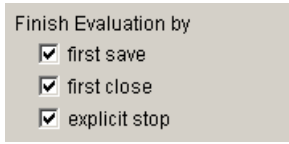


Figure 2-76 Finish Evaluation Pane

If you click **First Save**, the settings of the **Changes Afterwards** dialog box become active after saving the evaluation the first time. **First Close** activates the **Changes Afterwards** settings when you close the **Image** window during the initial evaluation. **Explicit Stop** allows you to mark the end of the evaluation anytime you want, using the **Stop Evaluation** button on the **Data Trailing** pane.

Region Names Pane

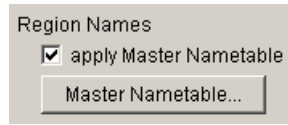


Figure 2-77 Region Names Pane

Clicking the **Master Nametable** button on the **Region Names** pane opens the **Master Name Table** dialog box, which is used to create or modify master nametables. Selecting the **Apply Master Nametable** option applies a master nametable to subsequent evaluations. Existing name-region assignments are left unchanged.

Automatic Export Pane

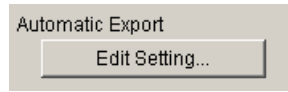


Figure 2-78 Automatic Export Pane

The **Edit Settings** button of the **Automatic Export** pane allows you to select, edit and save settings for automatically exporting the 2D Region Report/Region Calibration tables when the evaluation is saved to file.

Note – If you are perfoming evaluations with GLP support disabled, you can access the automatic export settings via the **Automatic Export** command of the **Options** menu.

Data Trailing Pane

After starting an evaluation, the controls of the **Data Trailing** pane are enabled.

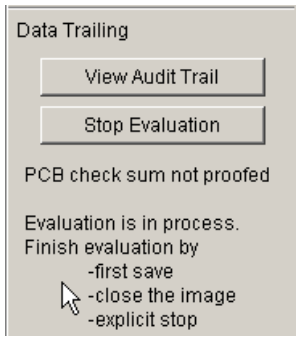


Figure 2-79 Data Trailing Pane (Evaluation in Progress)

The **View Audit Trail** button is used to open the **Audit Trail** window.

Use the **Stop Evaluation** button to mark the end of an evaluation anytime you want.

In the lower part of the **Data Trailing** pane, the status of the evaluation as well as the settings for ending the evaluation (depending on the checked **Finish Evaluation by** options) are given. In addition, if the PCB check sum option is disabled, a warning is displayed below the **Stop Evaluation** button.

After stopping the evaluation, the action which marked the evaluation's end is displayed (in this example by explicit stop via clicking the **Stop Evaluation** button)

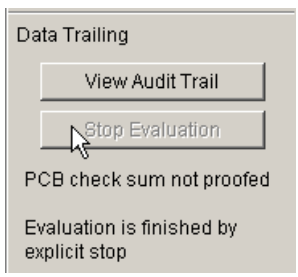


Figure 2-80 Data Trailing Pane (Evaluation Aborted by User)

Publishing Layout Toolbox in 2D TLC

In AIDA 2D TLC the standard AIDA **Publishing Layout** toolbox is expanded by three additional buttons for specifying the print options for the **Region Report, Region Calibration** and **Audit Trail.**:

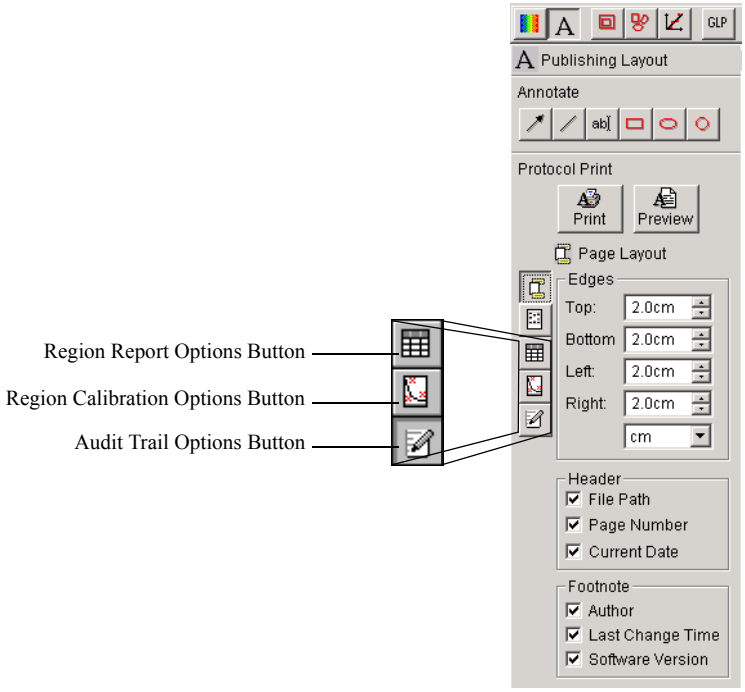


Figure 2-81 Publishing Layout Toolbox (Overview and Toolbar)

Print Options for Region Report

With the first one you can configure layout setting for the **Region Report** window in the **Protocol Print** pane.

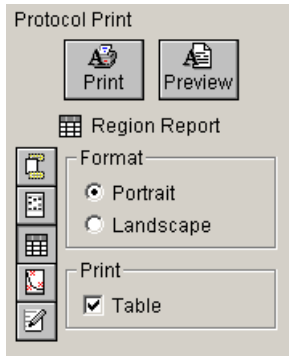


Figure 2-82 Print Options for the Region Report Window

Here you can select the paper orientation (**Portrait** or **Landscape**) by clicking the appropriate radio button in the **Format** pane. In the **Print** pane the scope for the print output can be specified. To turn on printing of the **Region Report** table, click the **Table** box.

Print Options for Region Calibration

The second additional button of the **Publishing Layout** toolbox is used to configure the layout setting for the **Region Calibration** window.

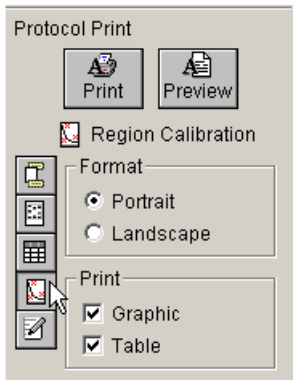


Figure 2-83 Print Option for the Region Calibration Window

You can select the paper orientation (**Portrait** or **Landscape**) by clicking the appropriate radio button in the **Format** pane.The options in the **Print** pane enable or disable the printing of the calibration curve (**Graphic**) und/or the calibration table (**Table**).

Print Options for Audit Trail

The last button of the **Publishing Layout** toolbox is used to configure the layout setting for the **Audit Trail** window in the **Protocol Print** pane.

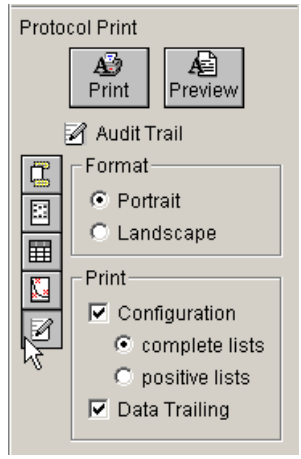


Figure 2-84 Protocol Print: Audit Trail Pane

As for the **Region Report** you can select the paper orientation (**Portrait** or **Landscape**) by clicking the appropriate radio button in the **Format** pane.The options in the **Print** pane enable or disable the printing of the **Data Trail** settings (**Configuration**) and/or the recorded data from the **Audit Trail** window (**Data Trailing**). In addition, if the **Configuration** option is checked, you can choose to print the **Complete Lists** of settings or just the **Positive Lists** (the checked options only).

Print

In AIDA there are two ways for printing your image and evaluation data:

- Choose **Print** from the **File** menu,

  or

- Use the **Protocol Print** pane on the **Publishing Layout** toolbox.

The **Print** command of the **File** menu allows you to print your data 'on the fly' without permanently storing the layout/printing settings, whereas the **Protocol Print** pane provides you with a complete set of printing features which includes saving the setting with the data file for reasons of reproducibility.

Choosing the **Print** command from the **File** menu opens the **Print** dialog box, allowing you to configure the printout to contain only the overlays, results and graphs that are currently needed. Click the checkboxes for the various items to turn them on or off. Select the number of copies, you want to print.

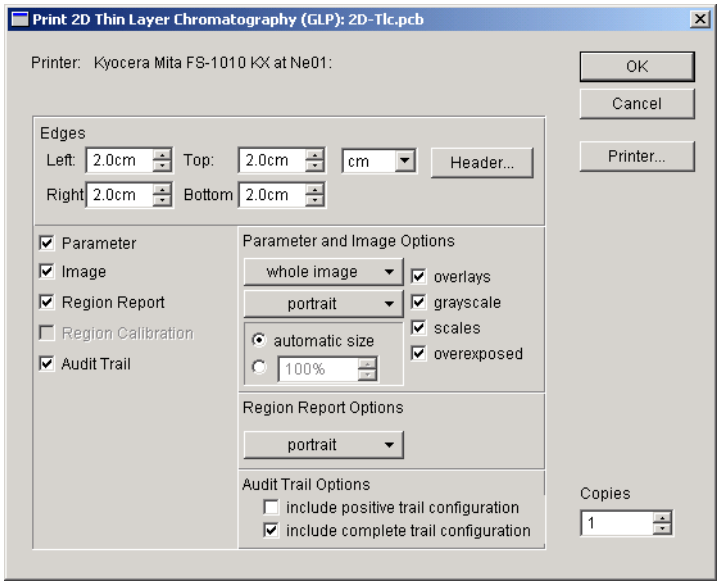


Figure 2-85 Print Dialog Box

The margins of the printout can be selected in the **Edges** part of the dialog box. The **Header** button displays the following dialog box:

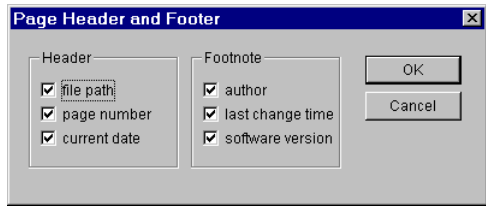


Figure 2-86 Page Header and Footer Dialog Box

Here the **Header** and **Footer** of the report can be configured to contain various image and evaluation specific data.

The **Parameter** (data overlays), the **Image**, **Region Report** and **Region Calibration** information can be selected in the left part of the **Print** dialog box.

In the right part of the dialog box (**Parameter and Image Options**) you can select **Whole Image**, or **Window Content** from the first drop-down menu. **Landscape** or **Portrait** format can be selected from the second drop-down menu. The printing of **Overlays**, **Grayscales**, **Scales**, and **Overexposed** can be selected. The printout can be automatically fitted to the page, or the relative size of the image representation can be selected (**in %**).

In the **Profile Options** pane you can specify to print the **Current Selection** or **all profiles** as well as the paper orientation (**Landscape** or **Portrait**) for the printout.

Finally, using the **Audit Trail Options** pane, you can specify whether to include information about the **Data Trail** settings at all, and if yes, to which extent configuration information should be printed (**Include Positive Trail Configuration**/**Include Complete Trail Configuration**).

Preview

As for printing, in AIDA there are two ways of previewing pages before they are actually printed:

- Using the **Print Preview** command from the **File** menu, or
- Using the **Preview** button on the **Publishing Layout** toolbox.

The **Print Preview** command of the **File** menu opens the **Preview** dialog box, which allows you to specify the layout settings for the preview. The options presented here are the same as in the **Print** dialog box and those selectable from the various panes of the **Publishing Layout** toolbox. However, they are not stored with the data file.

The **Preview** option of the **Publishing Layout** toolbox allows you to preview all pages as configured in the **Publishing Layout** toolbox before they are actually printed. Clicking the **Preview** button opens the **Preview** window directly, because all layout setting are already made through the **Print Protocol** pane.

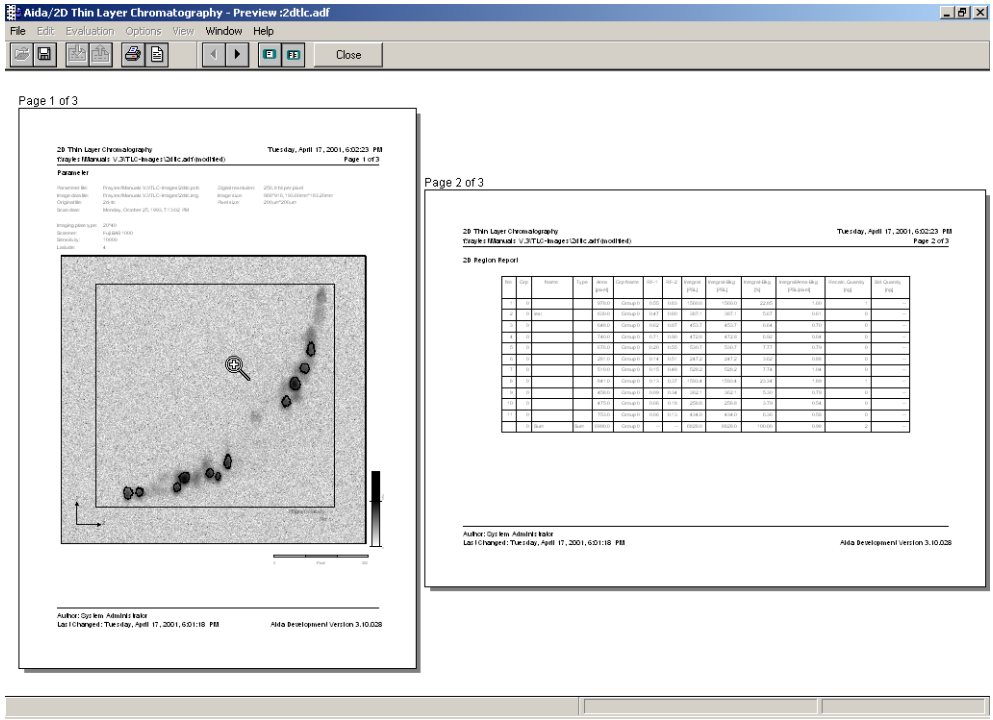

Aida/2D Thin Layer Chromatography - Preview :2dtlc.adf
File Edit Evaluation Options View Window Help
Close
Page 1 of 3
2D Thin Layer Chromatography
Tuesday, April 17, 2001, 6:02:23 PM
Page 1 of 3
Author: System Administrator
Last Changed: Tuesday, April 17, 2001, 6:01:18 PM
Aida Development Version 3.10.028
Page 2 of 3
2D Thin Layer Chromatography
Tuesday, April 17, 2001, 6:02:23 PM
Page 2 of 3
2D Region Report
Author: System Administrator
Last Changed: Tuesday, April 17, 2001, 6:01:18 PM
Aida Development Version 3.10.028

Figure 2-87 Preview Example

Export and Import

In AIDA 2D TLC various tables and graphs can be exported to be imported in other documents or programs. In addition the calibrations and templates can be exported to be applied to other images. The various functions can be found in the **Export** and **Import** submenus of the **File** menu.

Exporting Templates

To export your own evaluation templates:

1 On the **File** menu, click the **Export** menu item and then choose **Template** from the submenu.

2 In the **Export Template** dialog box that appears type a name for the export file and confirm the action by clicking **Save**,

or

1 Click the **Export Template** button on the toolbar to open the **Export Template** dialog box

Figure 2-88 Main Toolbar (Export Template Button)

2 Type a name for the export file in the **File Name** text box and complete the export action by clicking **Save**.

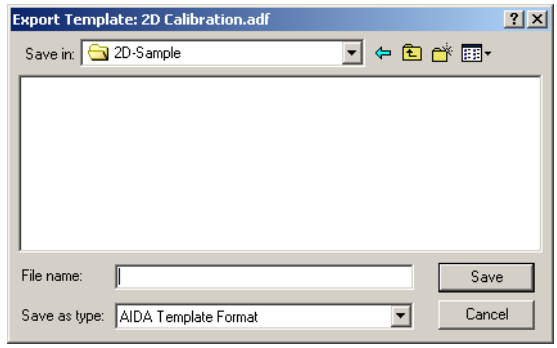


Figure 2-89 Export Template Dialog Box

Exporting Region Report

To export the Region Report:

1. On the **File** menu, click the **Export** menu item and then choose **2D Region Report** from the submenu.
2. In the **2D Region Report Export** dialog box that appears type a name for the export file.
3. Click **Save** to confirm the export.

   The **2D Region Report Export Options** dialog box appears, allowing you to set further option for the export of the result table.

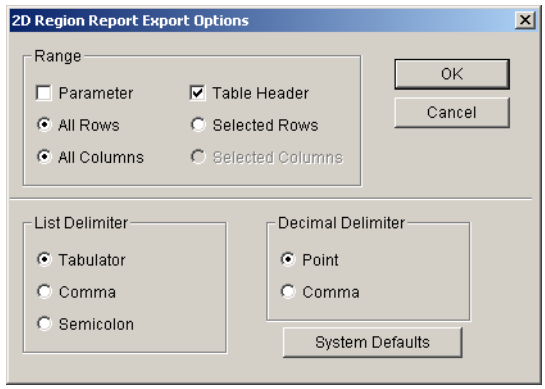


Figure 2-90 2D Region Report Export Dialog Box

You can specify the **Range** of the exported rows and columns (**Table Header**, **All Rows/Columns** *displayed* in the Region Report window or only the **Selected** (*highlighted*) **Rows/Columns** in the Region Report window) as well as the **List Delimiter** and **Decimal Delimiter** in the respective panes of the dialog box. Selecting the **System Defaults** button applies the Windows default settings to **List Delimiter** and **Decimal Delimiter**.

In addition, the parameter settings for the evaluation can be exported by checking the **Parameter** option. If this option is enabled, the following parameter information will be written to the export file:

Table 2-6 Exported Parameter Information

Parameter	Desciption
Export Parameters	
[1. Row]	Application name (e.g., “AIDA Whole Body Autoradiography (GLP)”)
[2. Row]	Type of exported data (e.g., “2D Region Report”)
Export settings	Identifier for the export parameter settings
Master nametable	Identifier for the master nametable (comprised of the unique AIDA internal indentifier and an import identifier and name)
*Image File Parameters (for Fuji BAS Scanner)**	
Parameter file	Image parameter file path (.pcb or .inf)
Image data file	Image raw data file path (.img)
Original filename	Name defined during the scan process
Scan date	Date and time of scan
Imaging plate type	Type of the imaging plate used
Scanner	Scanner type (e.g. “Fuji BAS-5000”)
Sensitivity	Sensitivity parameter of scan
Latitude	Latitude parameter of scan
IP Number	ID of IP plate used; entered during the scan process
Project	Project name entered during the scan process
Sample	Sample name entered during the scan process
Exposure	Exposure time of the plate entered during the scan process
Comment	Image and evaluation comments combined
Digital Resolution	Digital resolution of image
Image size	Width and height of image
Pixel size	Spatial resolution of image
Scan operator	Operator of the scan process

Table 2-6 Exported Parameter Information

Parameter	Desciption
Evaluation File Parameters	
Evaluation file	Evaluation file path (.adf)
Evaluation date	Date and time of evaluation
Evaluation operator	Operator of evaluation

* The actual image file parameters depend on the data file format and version.

```
# Aida 2D TLC(GLP)
# 2D Region Report
#
# Export setting: 20021104 110236 3896 (Till, Default Setting 04-11-2002)
# Master nametable: 20021104 142426 7666 (Master Name Table, 2002-08-16 / 35)
#
# Parameter file: i:\Aida Demo\2d tlc.inf
# Image data file: i:\Aida Demo\2d tlc.img
# Original file: 2d tlc
# Scan date: Tuesday, April 20, 1993, 4:02:43  AM
#
# Imaging plate type: 20*40
# Scanner: Fuji-BAS 1000
# Sensitivity: 10000
# Latitude: 4
#
# Digital resolution: 256, 8 bit per pixel
# Image size: 348*940, 69.60mm*188.00mm
# Pixel size: 200µm*200µm
#
# Evaluation file: i:\Aida Demo\2d tlc.adf
# Evaluation date: Monday, November 04, 2002, 3:22:42  PM
# Evaluation operator: System Administrator (Administrator)
```

Figure 2-91 Example of Exported Parameter Information

4 Complete the action by clicking **Ok**.

The data are saved to a simple ASCII (text) file.

Exporting Region Calibration

To export Region Calibration Data:

1 On the **File** menu, click the **Export** menu item and then choose **Region Calibration** from the submenu.

2 In the **Region Calibration Export** dialog box that appears type a name for the export file and specify the data format.

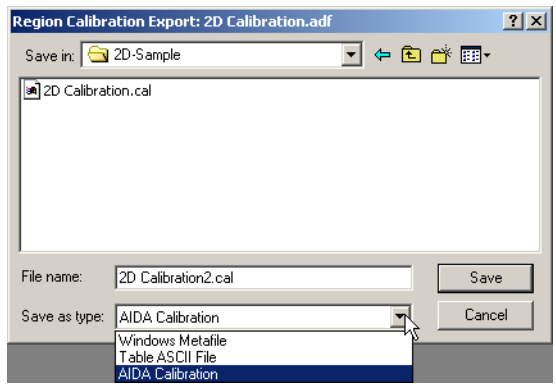


Figure 2-92 Region Calibration Export Dialog Box

To export the graph in the Region Calibration window:

- Choose **Windows Metafile**.

  The graph is saved to a separate file in the Windows Metafile format.

To export the result table of the Region Calibration window:

1 Select the **Table Ascii File** data format.

2 Click **Save** to confirm the export.

The **Quantity Calibration Export Options** dialog box appears, allowing you to set further option for the export of the result table.

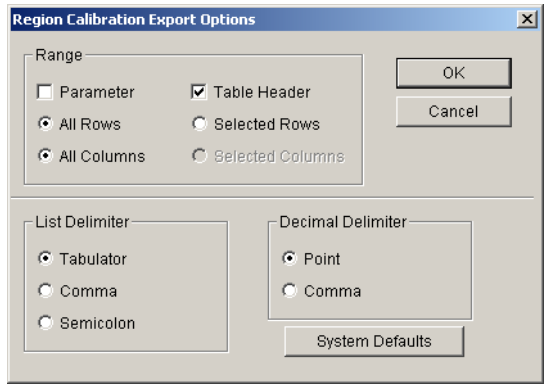


Figure 2-93 Region Calibration Export Options Dialog Box

You can specify the **Range** of the exported rows and columns (**Table Header**, **All Rows/Columns** *displayed* in the Region Report window or only the **Selected** (*highlighted*) **Rows/Columns** in the Region Report window) as well as the **List Delimiter** and **Decimal Delimiter** in the respective panes of the dialog box. Selecting the **System Defaults** button applies the Windows default settings to **List Delimiter** and **Decimal Delimiter**.

In addition, the parameter settings for the evaluation can be exported by checking the **Parameter** option.

3 Complete the action by clicking the **OK** button.

The data are saved to a simple ASCII (text) file.

In addition the calibration data can be exported to an AIDA Calibration file that can be imported into another image.

Exporting Audit Trail

To export **Audit Trail** data:

1. On the **File** menu, click the **Export** menu item and then choose **Audit Trail** from the submenu.
2. In the **Audit Trail Export** dialog box that appears enter a name for the export file.

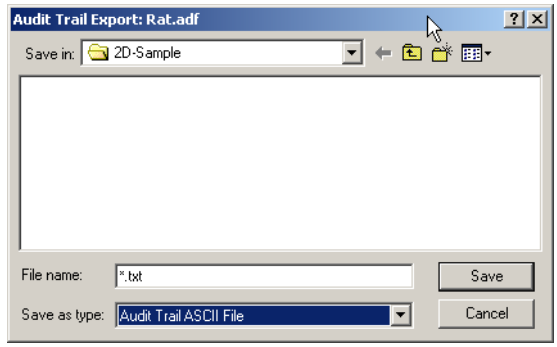


Figure 2-94 Audit Trail Export Dialog Box

3. Complete the export action by clicking the **Save** button.

   The data from the **Audit Trail** window are exported to an ASCII file (**Audit Trail Ascii File**, `.txt`).

Automatic Export of the Region Reports/Region Calibrations

AIDA's **Automatic Export** option allows you to export 2D Region Reports and/or Region Calibrations automatically when you save an evaluation.

You can specify preferences for the range of the table columns to be automatically exported as well as export settings, which are independent from the current work configurations of the table(s).

The naming of the export files follows the scheme "*Evaluation Name*.Region Report.txt" or "*Evaluation Name*.Region Calibration.txt", i.e., if the name of the evaluation file is `example.adf`, the Region Report export file has the name `example.Region Report.txt` and the Region Calibration export file is named `example.Region Calibration.txt`. Existing export files are overwritten without prompting the user. However, a backup file of the previous export file version is created.

Automatic Export always exports the entire result table. Restricting the export to selected rows is not possible.

The enabling of the automatic export option as well as its settings are evaluation-specific attributes, which are valid until they are explicitly changed using the **Preferences** or **Automatic Export** options of the **Options** menu or by importing an AIDA template. If you create a new evaluation, the current default configuration for **Automatic Export** is applied and will be saved with the evaluation data in the `adf.` file. The configuration remains valid unless it is explicitly changed by the user.

If GLP support is enabled, only user with administrator privileges can create or change automatic export settings. If the **Auto. Export Parameter** options is enabled via the **Data Trail Settings for** pane, any changes to the automatic export settings are logged in the audit trail report.

The automatic export settings are timestamped internally. In addition you can add a name and an ID, which are included in the Parameter pane of the export file together with the internal time stamp.

The parameter settings for the automatic export in AIDA 2D TLC are saved to separate `.set` files named "*`Parameter Name`*`.2D Thin Layer Chromatography Automatic Export.set`" in the AIDA `Config` directory, where *Parameter Name* is the name, you used in the **Save Automatic Export Setting** dialog box (see below).

To create automatic export settings:

1 From the **Options** menu, choose **Automatic Export** or click the **Edit Settings** button on the **Automatic Export** pane of the **GLP Supporting Tools** toolbar.

The **Automatic Export Setting** dialog box appears.

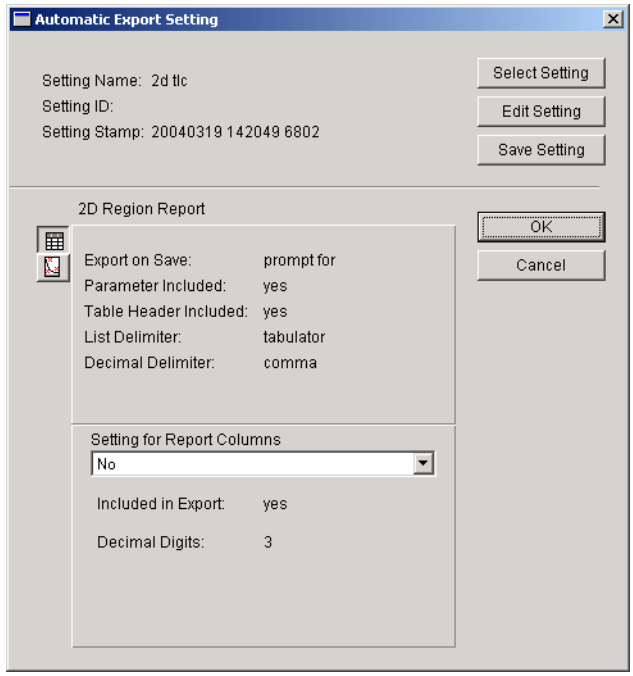


Figure 2-95 Automatic Export Setting Dialog Box

The top pane of the dialog box shows the current settings parameters, whereas the second displays the current settings for the automatic export of the 2D Region Report/Region Calibration. Click on the toolbar to switch between the settings pages.

2 Click **Edit Settings**.

The **Edit Automatic Export Setting** dialog box opens.

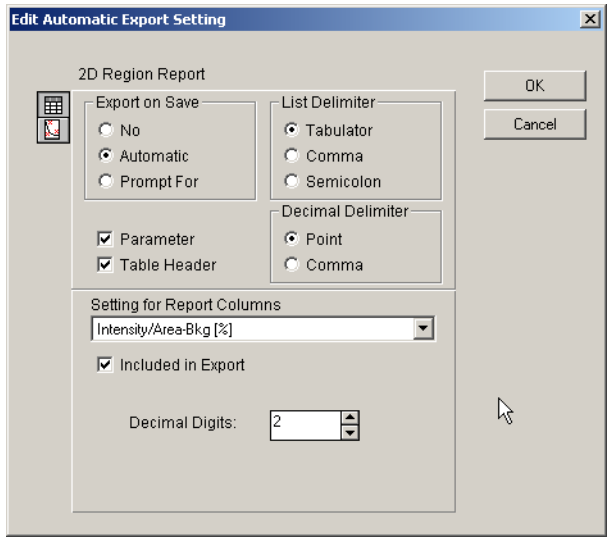


Figure 2-96 Edit Automatic Export Setting Dialog Box

The dialog box provides you with the following option:

- **Export on Save: Automatic** enables the automatic export and generates the export filename automatically from the evaluation filename. **No** disables the automatic export. If you select **Prompt for**, you will be prompted for an export data filename, when you save an evaluation.
- **Parameter:** enables/disables the export of the result table's parameter pane.
- **Table Header:** enables/disables the export of the table header.
- **List Delimiter:** allows you to select a delimiter for the columns
- **Decimal Delimiter:** allows you to select a decimal delimiter format.
- **Settings for Report Columns:** select columns subsequently and click to select or deselect the **Included in Export** option to include/exclude the respective column. Depending on the column you selected, you can specify additional settings (in this example: the **Decimal Digits**) for the exported values.

3 Select the appropriate options and click **OK** to complete the action.

Saving Automatic Export Settings:

1 On the **Automatic Export Setting** dialog box, click **Save Setting**.

The **Save Automatic Export Setting** dialog box opens.

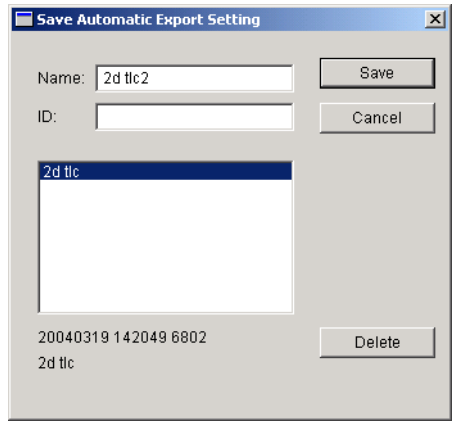


Figure 2-97 Save Automatic Export Setting Dialog Box

2 Type a unique name and an ID for the settings and click **Save** to confirm the action.

Selecting Automatic Export Settings

1 On the **Automatic Export Setting** dialog box, click **Select Setting**.

The **Select Automatic Export Setting** dialog box appears.

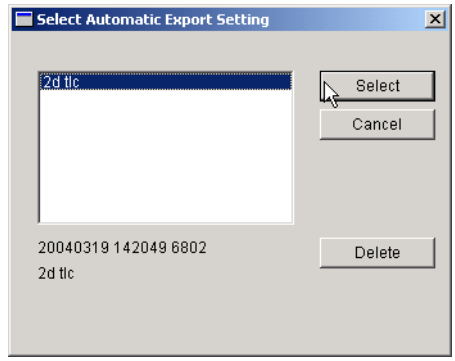


Figure 2-98 Select Automatic Eport Setting Dialog Box

2 Select a settings set and click **Select** to complete the action.

To delete a settings set:

1 Select the set you want to delete in the list of the **Select Automatic Export Setting** dialog box.

2 Click **Delete**.

Note – If GLP support is turned on, only user with administrator privileges can edit, save or delete automatic export settings.

Importing Region Calibration

1 To import the calibration curve from another image (e.g. taken at the same time with the same BAS screen, or from a second gel handled at the same time and captured under identical conditions), use the **Import** command of the **File** menu.

The **Region Calibration Import** dialog box appears allowing you to specify the calibration file (.cal).

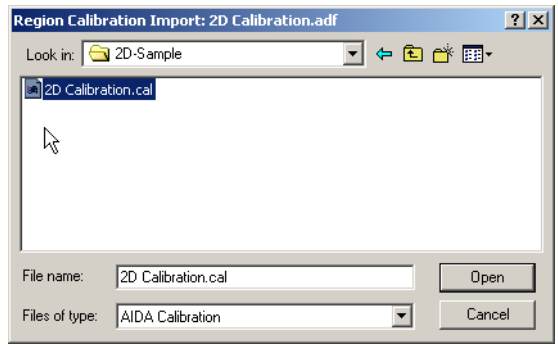


Figure 2-99 Region Calibration Import Dialog Box

Performing 2D TLC Evaluations 3

Setting the TLC Plate and 2D Origin/Fron Overlay

The first thing to do when doing a 2D TLC evaluation is to set the TLC plate with the origin and front lines.

Consider the following image.

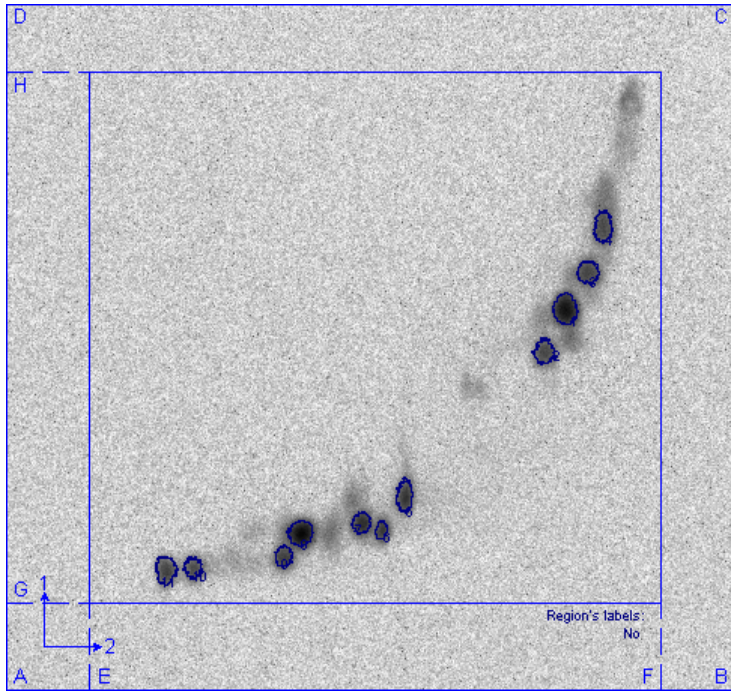


Figure 3-1 TLC Image Example

Here you can see the 2D TLC overlays. The outer rectangle represents the TLC plate, the inner rectangle is used for the calibration of the two TLC runs.

The TLC plate overlay is used for the calculation of the **Total** value shown in the **2D Region Report**.

The little cross-axes indicates the two run directions. The corner of the inner rectangle, where the little cross-axes are drawn, has the RF value 0 for the first and second run direction. The opposite corner has the RF value 1 for both run directions.

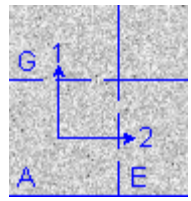


Figure 3-2 Run Direction Indicators

If the **2D TLC Calibration** toolbox is active, there are additional letters and helping lines that do refer to the dimension and position combo boxes of the toolbox.

You may change the location and size of the letters by choosing **Image Overlays** from the **Options** menu. Here you may also choose if the TLC overlays shall be drawn at all.

To set the TLC plate and 2D origin/front overlay, follow the steps below:

1. Select the **2D TLC Calibration** toolbox.
2. In the upper part, select the direction of the first run by choosing the appropriate entry from the 1st **Run Direction** pull-down menu.

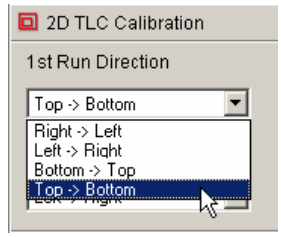


Figure 3-3 Selecting Direction for First Run

3 Then select the direction of the second run.

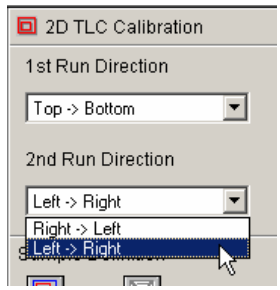


Figure 3-4 Selecting Direction for Second Run

4 Click the **Define Sample** button.

This will create an overlay for the TLC plate, containing a second overlay for the origin and front lines.

Figure 3-5 Define Sample Button (Sample Definition Panel)

The outer rectangle represents the TLC plate, the inner rectangle represents the origin and front lines. By default, the position of the outer rectangle's edges is congruent with the edges of the image.

If your TLC plate is not identical to the whole image:

1 Double-click near an edge of the image.

This will activate the Editing mode for the TLC plate overlay.

2 Move, rotate and stretch this overlay until it is congruent with the TLC plate.

3 Press the Return key to confirm the changes.

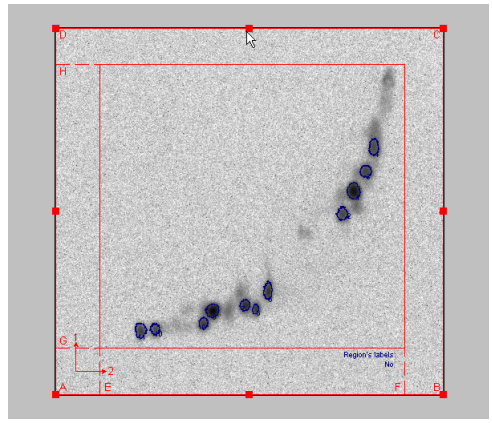


Figure 3-6 Editing TLC Plate Overlay

Adjusting Origin and Start Lines

1 Now double-click near an edge of the inner rectangle which represents the origin and front lines.

2 Move, rotate and stretch this overlay until it is congruent with the origin and start lines.

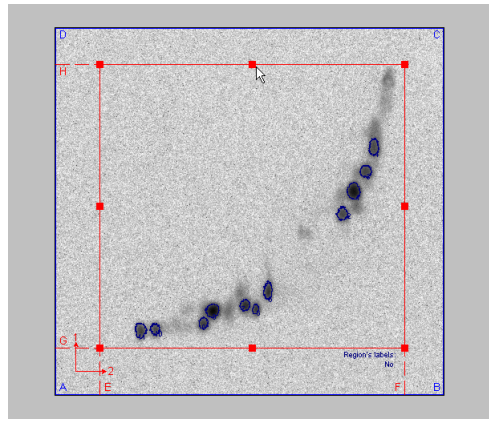


Figure 3-7 Adjusting Origin and Start Lines

You can use the various combo boxes to type in directly the dimensions of your plate and your TLC runs if you know them.

Changing Run Direction of Existing Overlays

If you want to change the run directions after the overlays have been set, you have to delete the already set overlays first by clicking the **Delete Overlay** button and then redefine them.

Figure 3-8 Delete Overlay Button (Sample Definition Panel)

Now you have completed the setting of the TLC plate and the 2D origin/front overlay.

You may proceed now with the usual 2D densitometry evaluation: Select the **Region Determination** toolbox to set regions and then use the **Region Calibration** toolbox to calibrate your measurement.

Assigning Regions

To define regions for signal intensity evaluation, it is important to set the **Image Attributes** in the **Options** menu first (see the “AIDA Image Analyzer Basic Concepts and Features User's Manual”). If these settings are not correct further image evaluation will not result in meaningful results.

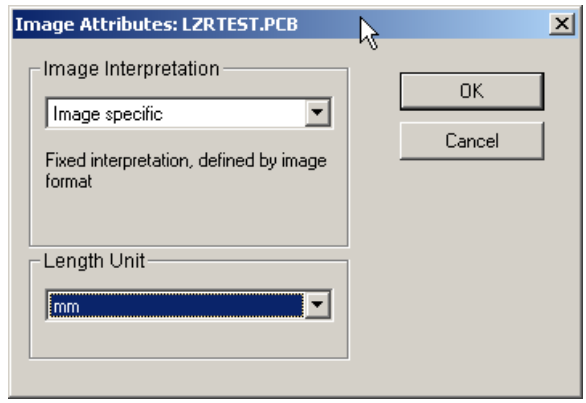


Figure 3-9 Setting Image Attributes

To enable signal intensity evaluation the regions of interest must be marked by an enclosure of the appropriate shape. In the beginning you might find it difficult to exactly encircle a region of interest. Some experience is needed to get this done on the first attempt.

To select regions of interest:

1 Click the appropriate button (here circle) in the **Region Creation** pane of the **Region Determination** toolbox to select a shape (alternatively click the circle symbol on the toolbar).

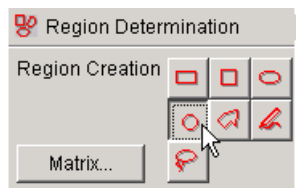


Figure 3-10 Selecting Circle Tool

2 Position the mouse pointer over the top left edge of the region in the image, press the mouse button and drag the mouse to the lower right edge of the region to be assigned.

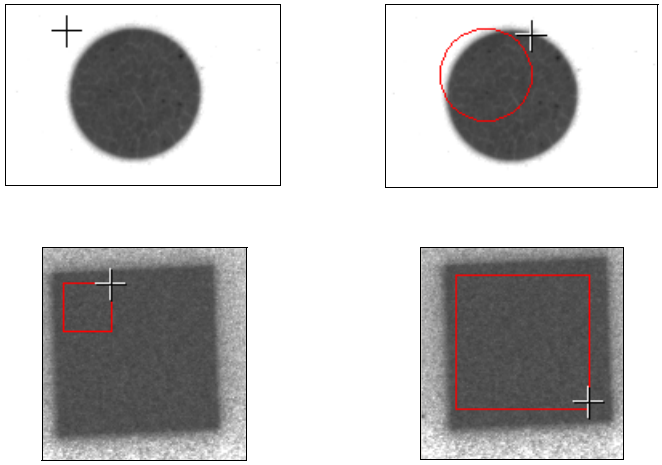


Figure 3-11 Marking Region

3 Release the mouse button.

4 Drag on the handles of the overlay to adjust the shape of the region overlay.

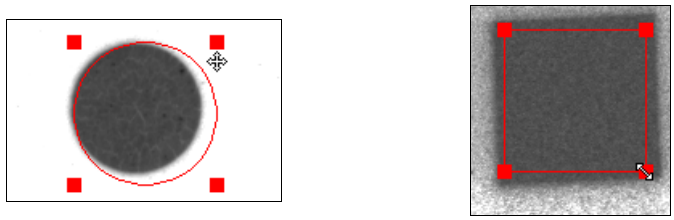


Figure 3-12 Adjusting Region Shape

5 Click in the middle of the region to adjust the position of the entire region.

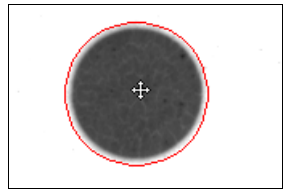


Figure 3-13 Adjusting Region Overlay Position

To rotate a region overlay:

1 Click the left mouse button to switch to rotation mode.

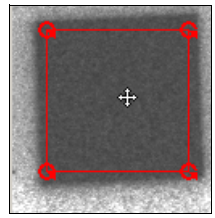


Figure 3-14 Activating Rotation Mode

2 Drag on a handle to rotate the overlay.

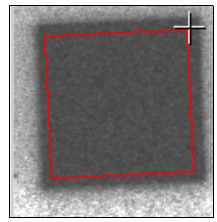


Figure 3-15 Rotating an Overlay

3 Click the left mouse button again to go back to the relocation mode.

You might need multiple rounds of adjusting in the beginning.

4 After the region is correctly assigned, click the right mouse button or press the ENTER key to save it.

The same strategy is followed for the squares, circles, and ellipses. The ellipses tend to be the most difficult to align.

The **Polygon** tool and the **Freehand Drawing** tool work similar as for known graphic programs:

Using the **Ploygon** tool, every edge of the new region is clicked, whereas using the **Freehand Drawing** tool the mouse button is hold during the manual encircling.

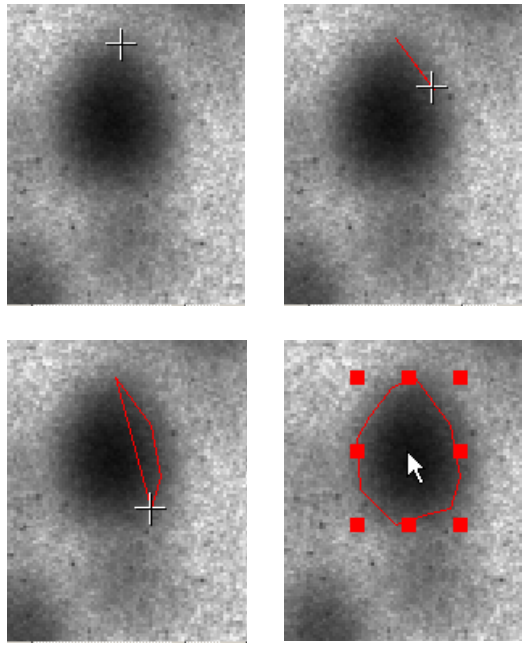


Figure 3-16 Using the Polygon Tool

To edit these polygons a third mode exists besides the relocation and turning mode. In this third mode all handles (edges) of the region will be displayed and their position can be changed. This allows you to reshape the region.

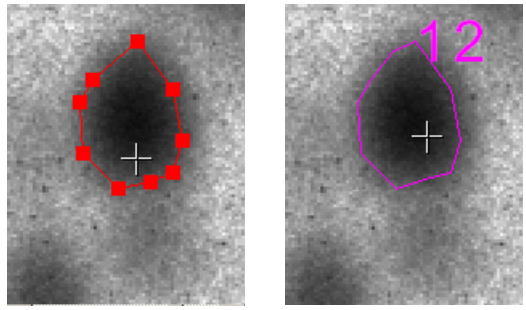


Figure 3-17 Editing Polygonal Overlays

Finally the **AutoContour** tool will connect pixels of similar intensity to encircle an object automatically.

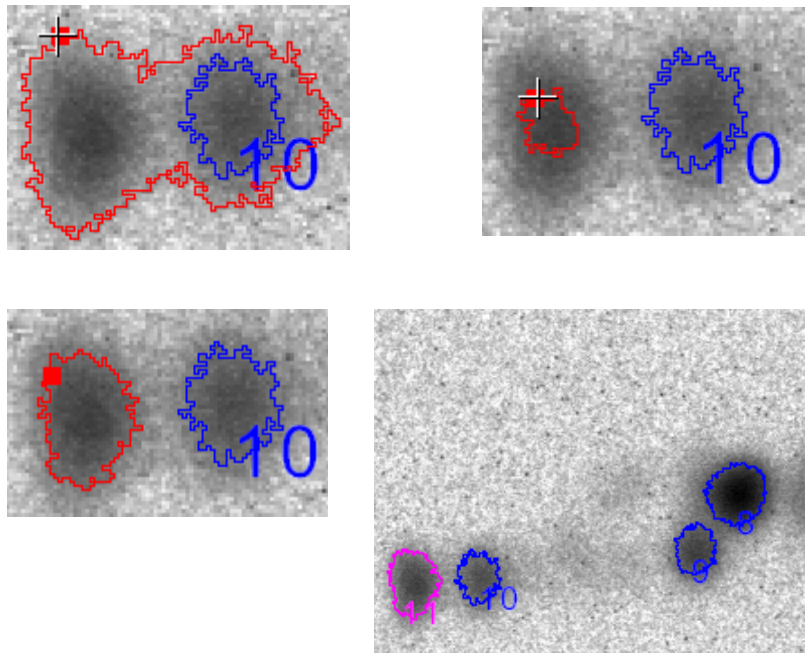


Figure 3-18 Using the AutoContour Tool

To mark a region using the AutoContour tool:

1. Select the **AutoContour** tool.
2. Point to a position within the border area of an object that you would like to encircle (example above: heart of a rat cut autoradiography), press the mouse button and shift around carefully within the object until the correct border is selected.
3. Release the mouse button.

   On release, the border is marked and can be edited as usual.

You can cancel any overlay (region) editing action anytime you want by simply pressing the ESC key.

The numbering of the regions can be configured using the **Region Label and Name** controls of the **Region Determination** toolbox (for details, refer to the Region Label and Name pane in the “Region Determination Toolbox” chapter of this manual). Adjust the settings to your experimental design and personal preferences.

Using Arrays (Matrices)

It can be helpful to use matrices to evaluate regular patterns of regularly shaped regions (e. g. slot or dot blots, multiwell plates, etc.).

To create a matrix:

1. Mark the first region of the regular pattern in question using the appropriate controls of the **Region Creation** pane on the **Region Determination** toolbox.
2. Accomplish the region creation by clicking the right mouse button or alternatively pressing the ENTER key.
3. Click the **Create Matrix** button on the **Region Creation** pane, to specify the appropriate matrix layout for the region pattern.

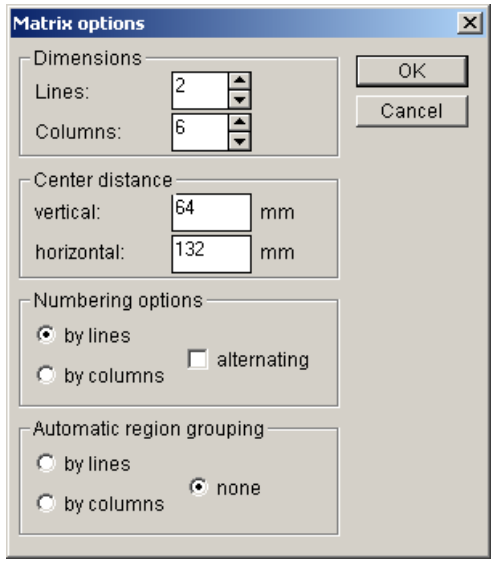


Figure 3-19 Matrix Options Dialog Box

4. Enter the number of lines (2 in this examples) and columns (6 in this examples) as well as the distances (x and y- direction) between the center of the regions.

This will be easy for scanners (just measure the original and enter the actual distance) but difficult for camera images (trial and error). However, the work is worthwhile, because all regions will be drawn and assigned at the same time and the same array can be used for another image, even if the size of the image is somewhat different from the original one.

Figure 3-20 Matrix Creation

To save the matrix:

1. Choose **Template** from the **Export** submenu of the **File** menu.
2. Type a name for your matrix template in the text box of the dialog box that appears (e. g. slotblot.atf).

You can apply your saved template to a similar image from the same kind of application by selecting the **Template** command from the **Import** submenu and then choosing the appropriate template from the displayed file list in the dialog box that appears. The matrix region will be displayed in one single frame which can be moved and reshaped as if it would be only one region.

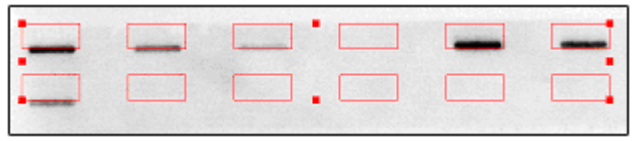


Figure 3-21 Matrix Creation Completed

You can relocate the matrix template by dragging the frame in the appropriate direction.

Figure 3-22 Relocating Matrix Template

To rotate the template, just double-click it and drag one of the handles that appear.

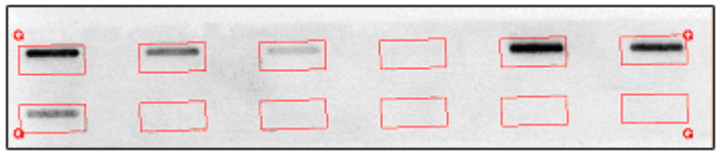


Figure 3-23 Rotating Matrix Template

Finally accomplish your adjustments by right-clicking the matrix or alternatively pressing ENTER.

Figure 3-24 Matrix Template Adjustments Completed

Defining a Background Signal

It is advisable to determine the background signal before quantifying the signals.

Since in many applications the background can vary considerably from location to location, the possibility to assign an individual local background around a region can help to evaluate the signals. Note, that local backgrounds can be defined for *rectangular* and *ellipsoidal* regions only. It should also be noted that the background around the region must be clearly separated from the signal. If e. g. a 2D gel spot is assigned, it is likely that the outer borders of the signal come to lie under the background area, because they are very difficult to see for the human eye.

To define a global background region:

1 Mark an image area with no signal activity using the **Region Creation** tools.

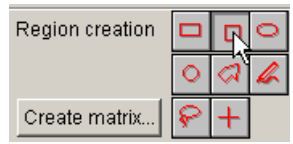


Figure 3-25 Selecting Region Creation Tool

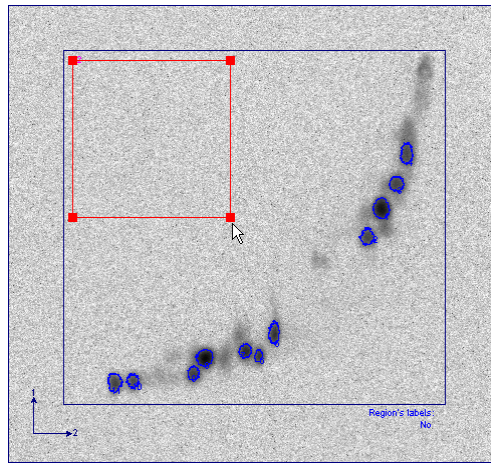


Figure 3-26 Selecting Image Area

The newly created region is highlighted in the **2D Region Report** window.

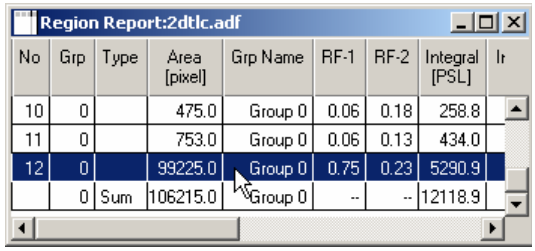


Figure 3-27 Highlighted Region in the 2D Region Report Window

2 To define the region as background region, select the **Background** check box on the **Integration** panel of the **Region Determination** toolbox.

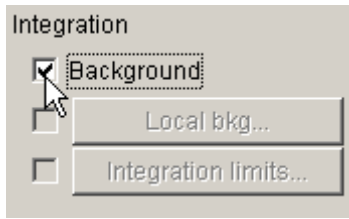


Figure 3-28 Backgound Checkbox

3 Review the changes in the **2D Region Report** window. Note that the value for **Type** of the region is changed to **Bkg**.

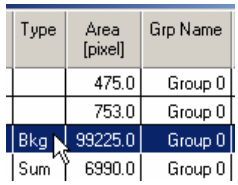


Figure 3-29 Bkg Value in the 2D Region Report Window

To define one or more local background regions:

1 Mark one or more image areas in the vicinity of spot, for which the background calculation should be performed using the **Region Creation** tools of the **Region Determination** toolbox.

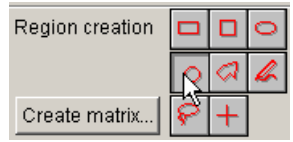


Figure 3-30 Selecting Region Creation Tool

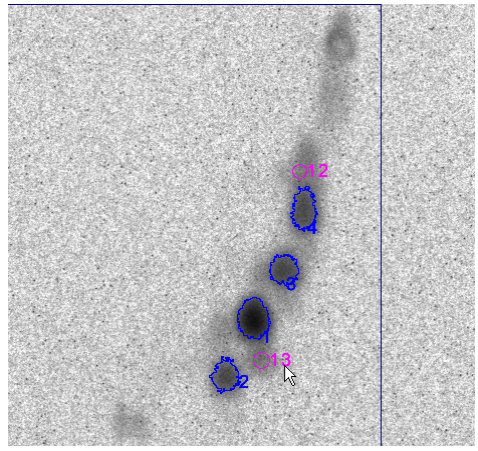


Figure 3-31 Selecting Image Areas

The newly created region is highlighted in the **2D Region Report** window.

No	Grp	Type	Area [pixel]	Grp Name	RF-1	RF-2	Integral [PSL]	I
10	0		475.0	Group 0	0.06	0.18	258.8	
11	0		753.0	Group 0	0.06	0.13	434.0	
12	0		177.0	Group 0	0.76	0.89	51.5	
13	0		225.0	Group 0	0.50	0.84	72.4	

Figure 3-32 Highlighted Regions

2 To set the regions to background, check the **Background** option on the **Integration** pane of the **Region Determination** toolbox.

3 Select all spots for which the local background should be defined together with the designated background regions.

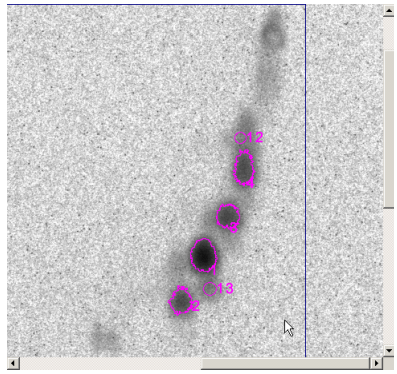


Figure 3-33 Selecting Local Background Application area

You can review the selection in the **2D Region Report** window.

Region Report:2dtlc.adf

No	Grp	Type	Area [pixel]	Grp Name	RF-1	RF-2	Integral [PSL]	Integ [F
1	0		978.0	Group 0	0.55	0.83	1560.0	
2	0		630.0	Group 0	0.47	0.80	387.1	
3	0		648.0	Group 0	0.62	0.87	453.7	
4	0		740.0	Group 0	0.71	0.90	472.8	
5	0		676.0	Group 0	0.20	0.55	530.7	
6	0		281.0	Group 0	0.14	0.51	247.2	
7	0		510.0	Group 0	0.15	0.48	528.2	
8	0		841.0	Group 0	0.13	0.37	1593.4	
9	0		458.0	Group 0	0.09	0.34	362.1	
10	0		475.0	Group 0	0.06	0.18	258.8	
11	0		753.0	Group 0	0.06	0.13	434.0	
12	0	Bkg	177.0	Group 0	0.76	0.89	51.5	
13	0	Bkg	225.0	Group 0	0.50	0.84	72.4	
	0	Sum	6990.0	Group 0	--	--	6828.0	

Figure 3-34 Selected Region highlighted in the 2D Region Report Window

4 On the **Report** panel, click the **Group** button to assign the selected regions to a single group.

Figure 3-35 Selecting Group Button

Again, the changes are reflected in the **2D Region Report** window.

Region Report:2dtlc.adf

No	Grp	Type	Area [pixel]	Grp Name	RF-1	RF-2	Integral [PSL]	Ir
6	0		281.0	Group 0	0.14	0.51	247.2	
7	0		510.0	Group 0	0.15	0.48	528.2	
8	0		841.0	Group 0	0.13	0.37	1593.4	
9	0		458.0	Group 0	0.09	0.34	362.1	
10	0		475.0	Group 0	0.06	0.18	258.8	
11	0		753.0	Group 0	0.06	0.13	434.0	
	0	Sum	3994.0	Group 0	--	--	3954.4	
1	1		978.0	Group 1	0.55	0.83	1560.0	
2	1		630.0	Group 1	0.47	0.80	387.1	
3	1		648.0	Group 1	0.62	0.87	453.7	
4	1		740.0	Group 1	0.71	0.90	472.8	
12	1	Bkg	177.0	Group 1	0.76	0.89	51.5	
13	1	Bkg	225.0	Group 1	0.50	0.84	72.4	
	1	Sum	2996.0	Group 1	--	--	2873.5	

Figure 3-36 Reviewing Grouping in 2D Region Report Window

Note – All members of the newly created group have the same **Grp Name** value assigned. The previously performed (local) background setting now applies only to the domain of its group members.

Performing Calibrations

The signal intensity of a region can be compared with the signal intensity of other regions (relative comparison) or normalized by standards in the same image, or even in other samples of the same series.

For the normalization (calibration), it is necessary to define reference regions for the creation of standard curves.

To assign standards:

1 Select the **Manual Assignment** tool from the **Region Calibration** toolbox.

2 Click on a region.

The **Region Calibration** dialog box pops up and prompts you to enter the standard value und unit of measurement.

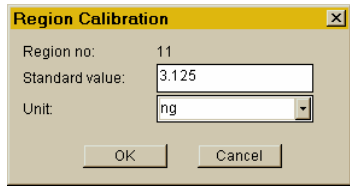


Figure 3-37 Entering Standard Values and Unit of Measurement

In the example shown below the regions 1 to 6 are a series of a standard. Region 7 was assigned as a background region.

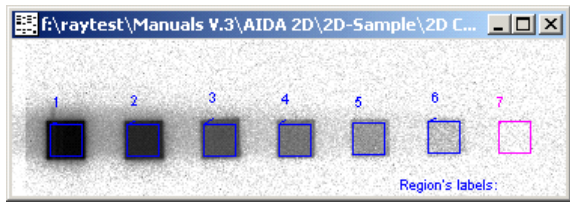


Figure 3-38 Region Calibration Example

3 Enter the appropriate standard value und click **OK** to assign it to the region.

In the **Region Calibration** toolbox the entered standard values are listed below the **Standard** drop-down menu.

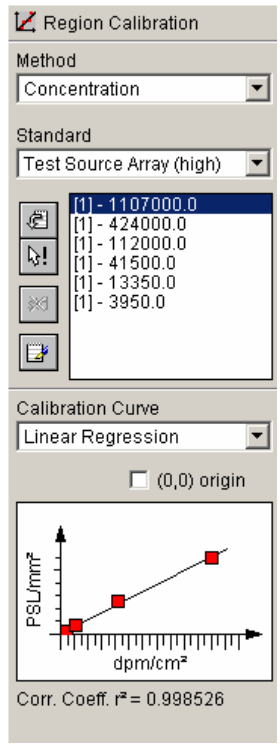


Figure 3-39 Region Calibration Toolbox With Entered Standard Values Displayed

The list of standard values can be saved for later use as a standard list. Standard values from saved lists can be used to assign all standards by merely clicking at each region subsequently.

4 Select a **Calibration Curve** type from the **Calibration Curve** drop-down menu.

The type of the calibration curve can be selected on the basis of theoretical considerations or simply to fit the observed situation.The resulting calibration curve can be immediately evaluated and the r^2 value will give a parameter to judge the fit (should be next to 1).

5 Turn on the **(0,0) Origin** option if useful.

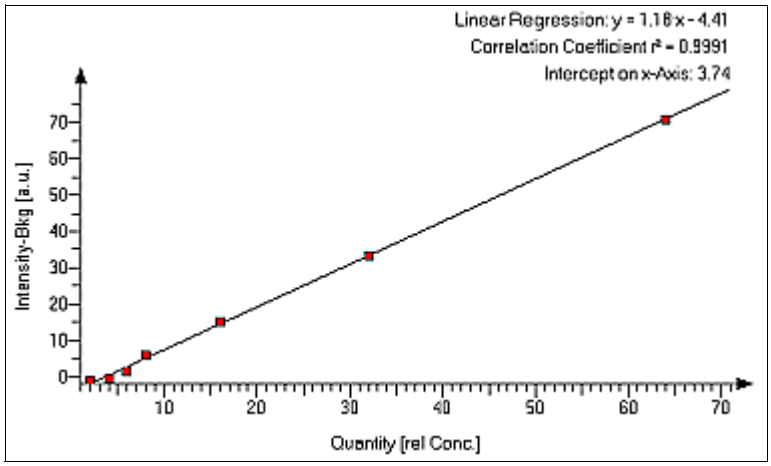


Figure 3-40 Calibration Graph Example

As mentioned above, a correlation coefficient value of 1 identifies a perfect correlation, a value of 0 indicates full independence of values. Good standard curves should have value very near to 1.

Using Nametables

Nametables are used to name regions for reference purpose.

To standardize the naming, you can use a *master nametable*, which contains all region names in the correct (predefined) spelling. This is especially useful for postprocessing of evaluation data using a database. Using predefined names ensures that the mapping between regions and names is consistent across different evaluations. For easy referencing, every name in the master nametable has a unique identifier associated with it.

The predefined names as well as the associated identifiers are strings, so identifiers are not required to be of the number type. Names and identifiers must not exceed 1024 characters. On the **Region Name** tab, only about 20 characters are displayed.

In addition to the list of predefined names and associated IDs, the master nametable contains a **Table Name**, **Table ID** and **Table Stamp** (a unique internal master nametable ID, which consists of date, time and a random number).

The master nametable is saved to a file named `2d-densitometry-name.glp` in the AIDA `Config` folder. To use the table on another computer, just copy the file to the `Config` folder of the AIDA program on the respective machine or alternatively use the **Export**/**Import** option of the **Master Name Table** dialog box (see the “Exporting Master Nametables” section below).

After applying a master nametable, you can assign the names listed in the master name table. To assign a name from the master name table to a region, you must create a work nametable, which contains all or a selection of the names provided by the master nametable (see the “Creating and Editing Work Nametables” section below).

Master nametables are not part of the evaluation and can therefore be applied ex post. The application of a master nametable is always logged to the audit trail.

Creating and Editing Master Nametables

Master nametables are created and applied using the **GLP Supporting Tools** toolbox.

The names and identifiers for the master nametable are provided by an import table file. The import table file is a text file, which contains a semicolon or tab separated list of unique predefined names and identifiers. Cells cannot be empty and multiple instances of a value are not allowed. Valid end-of-line control codes are the hexadecimal equivalents for CR (Macintosh), LF (UNIX) or CRLF (Windows). A table name and a table ID can be included in the file using the keywords `#TABLE_NAME:` and `#TABLE_ID:` respectively:

```
#TABLE_NAME: Master Name Table
#TABLE_ID: 2003-01-10 / 35
#TABLE_UNIQUEID: 20030110 141325 0396
n001   Region1
n002   Region2
n003   Region3
n004   Region4
n005   Region5
n006   Region6
n007   Region7
n008   Region8
```

Code Example 3-1 Import Table Example

On import, the import table replaces an empty (or existing) master nametable and the value for #TABLE_UNIQUEID is reset to a new value.

To create or edit a master nametable:

1. Make sure that no image is currently loaded.
2. Select the **GLP Supporting Tools** toolbox.
3. Click **Master Nametable**.

Figure 3-41 Selecting Master Nametable

The **Master Name Table** dialog box appears.

4 Click **Import** to select an import table.

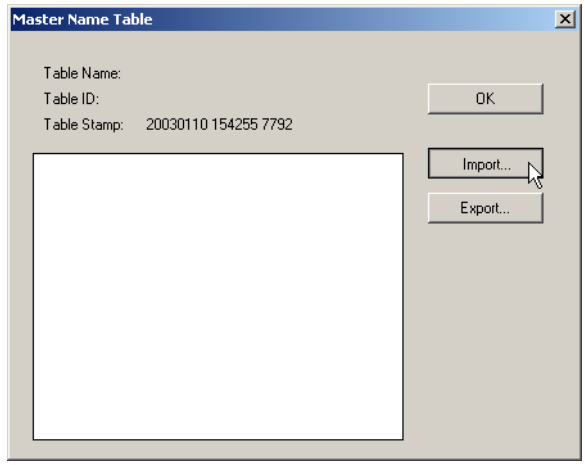


Figure 3-42 Master Name Table (Empty Master Name Table)

The **Import Master Name Table** dialog box open, allowing you to select an import table file.

5 Select an import table file and click **Open** to continue.

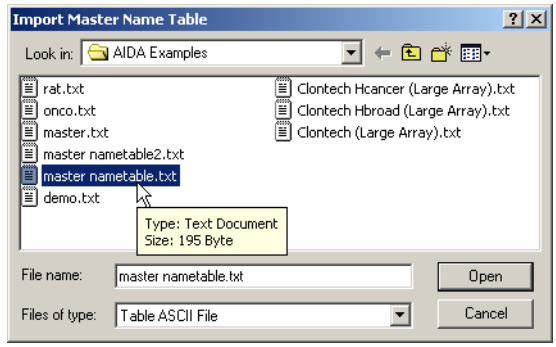


Figure 3-43 Import Master Table Dialog Box

The import table is loaded and replaces the existing (in this example: empty) master nametable. All changes to the master name table are logged and displayed in the **Changes in Master Nametable** dialog box.

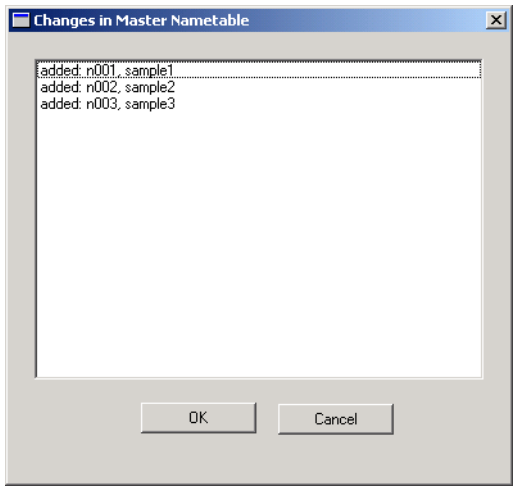


Figure 3-44 Changes in the Master Nametable Dialog Box

6 Click **OK** to apply the changes or **Cancel** to discard them.

Activating Master Nametables

To activate a master nametable:

- Click the **Apply Master Nametable** checkbox.

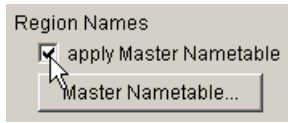


Figure 3-45 Applying Master Nametable

Note – Checking this option with GLP support enabled applies the master nametable to any new evaluation. The **Apply Master Nametable** attribut is set on evaluation startup and cannot be changed for the currently running evaluation. On startup, the evaluation is associated with the current master nametable. The association is logged in the audit trail. If you open this evaluation with a version of AIDA, which uses a different master nametable, the master nametable of this version is used for any new name assignments made. Names assigned using the previous master nametable are left unchanged.

Exporting Master Nametables

You can save your current master nametable to a text file (tab separated values) for use as import table file using the Export option of the **Master Nametable** dialog box.

To export a master nametable:

1. Click the **Master Nametable button on the** GLP Supporting Tools toolbar to open the **Master Nametable** dialog box.
2. On the **Master Nametable** dialog box, click **Export**.

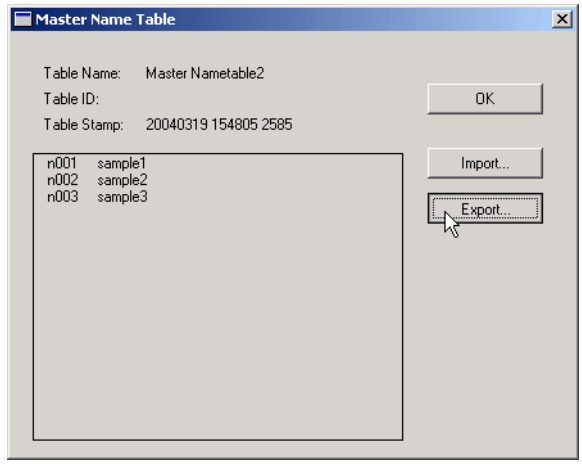


Figure 3-46 Exporting Master Nametable (Step 1)

The **Export Master Name Table** dialog box appears.

3 Type a name and select a location and data format for the export file and click **Save** to complete the action.

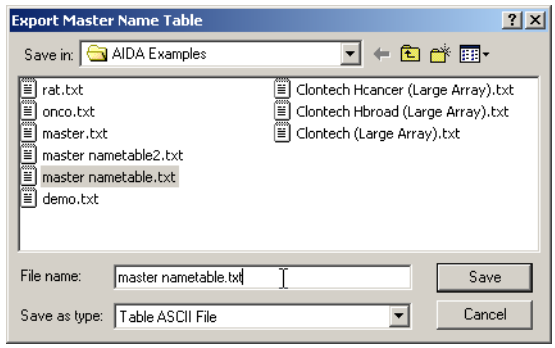


Figure 3-47 Exporting Master Nametable (Step 2)

In addition to the contents of the master nametable, the internal master nametable identifier (**Table Stamp**), the **Table Name** and the **Table ID** are included in the export file.

Note – On import the value for the Table Stamp (`TABLE_UNIQUEID`) is not imported, but set to a new value.

Creating and Editing Work Nametables

Work nametables are used to assign names to regions. Any user can create a new or edit an existing work nametable. Note, that depending on whether a master nametable is applied or not, the creation or editing procedure for work nametables is slightly different.

To create a new work nametable (*no* master nametable applied):

1 On the **Region Determination** toolbox click the **Select Name List** button.

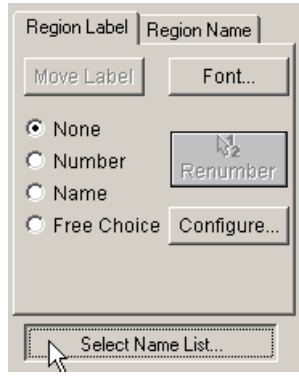


Figure 3-48 Region Determination Toolbox: Select Name List Button

The **Region Nametables** dialog box appears showing the current work nametable's list of names and a dropdown list with the names of all existing work nametables.

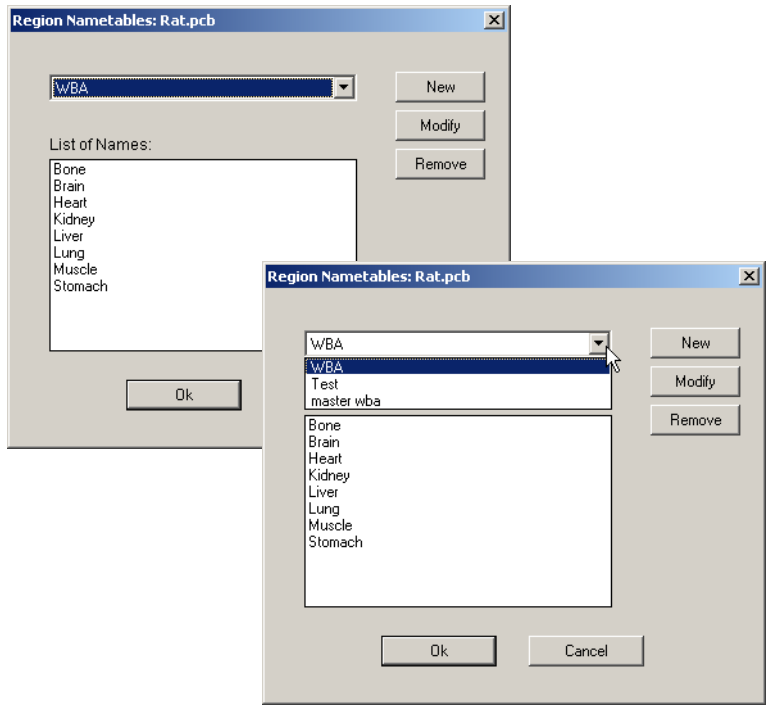


Figure 3-49 Region Nametables Dialog Box

2 Click **New**.

The **Nametable Editor** dialog box appears.

3 Type a name for the work nametable in the **Title** text box and a list of names in the **List of Names** text box.

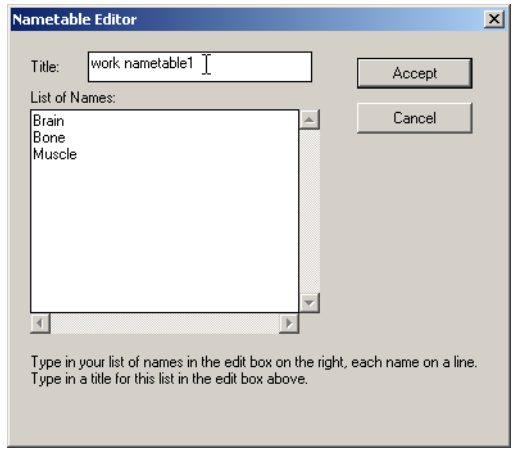


Figure 3-50 Nametable Editor Dialog Box

4 Click **Accept** to confirm the changes.

To modify a work nametable (*no* master nametable applied):

1 On the **Region Determination** toolbox click the **Select Name List** button.

The **Region Nametables** dialog box appears.

2 Click **Modify**.

The **Nametable Editor** dialog box appears.

3 Edit the entries in the in the **List of Names** list box.

4 Click **Accept** to confirm the changes.

To create a new work nametable with master nametable applied:

1 On the **Region Determination** toolbox click the **Select Name List** button.

The **Region Nametables** dialog box appears showing the current work nametable's list of names and a dropdown list with the names of all existing work nametables. Only work nametables derived from the master nametable are display (if no master nametable is applied, only the custom work nametables are displayed).

2 Click **New** to create a new work nametable derived from the current master nametable.

The Nametable Editor dialog box appears.

3 Type a title for the work nametable in the **Title** text box.

4 Select one or more entries from the **Master Nametable** list and click the left arrow button to copy the entries to the **List of Names** list of the work nametable. The selected entries are inserted *below* the last entry in the **List of Names** list, if no **List of Names** entries is highlighted. If one or more **List of Names** entries are highlighted, the selected names from the **Master Nametable** list are inserted *above* the first highlighted **List of Names** entry.

Note – You can add multiple instances of one **Master Nametable** entry to the work nametable's **List of Names** list.

---

5 To define a custom name, type the name in the text box above the **List of Names** list and click **Add** to add it to the list.

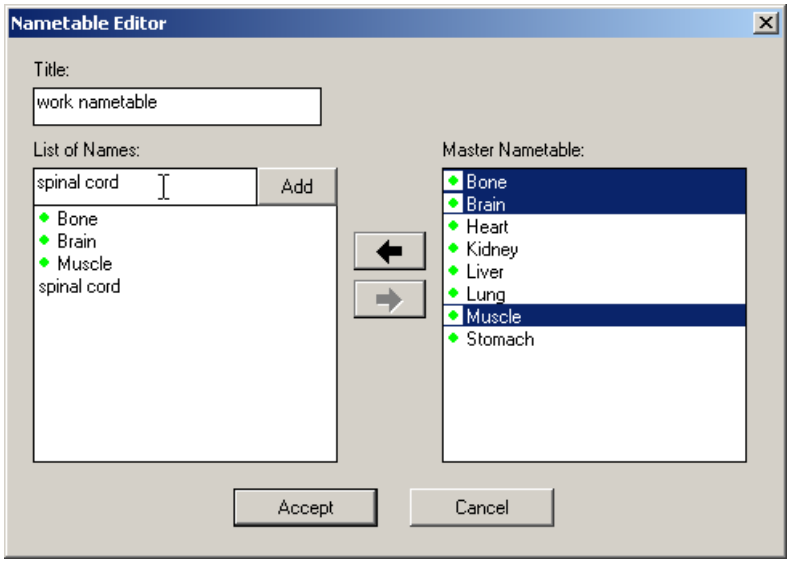


Figure 3-51 Creating Work Nametable (Master Nametable Applied)

To modify a work nametable with master nametable applied:

1 On the **Region Determination** toolbox click the **Select Name List** button.

The **Region Nametables** dialog box appears.

2 Click **Modify**.

3 On the **Nametable Editor** dialog box that appears select the entries you want to *remove* from the work nametable in the **List of Names** list box and click the right arrow button. To *add* entries to the work nametable, select the appropriate entries in the **Master Nametable** list box and click the left arrow button.

4 Click **Accept** to confirm the changes.

Assigning Names to Regions

To assign names to regions:

1 Select a region.

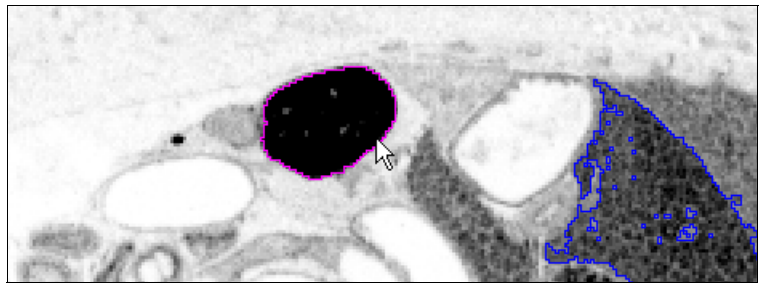


Figure 3-52 Selecting a Region

2 On the **Region Determination** toolbox, select the **Region Name** tab.

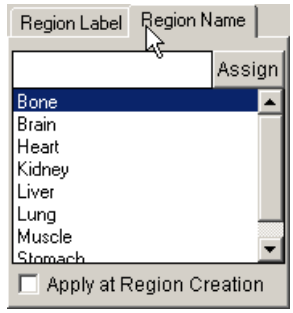


Figure 3-53 Selecting Region Name Tab

3 Select the appropriate entry from the list to assign the name to the selected region. The list shows the names defined in the current work nametable.

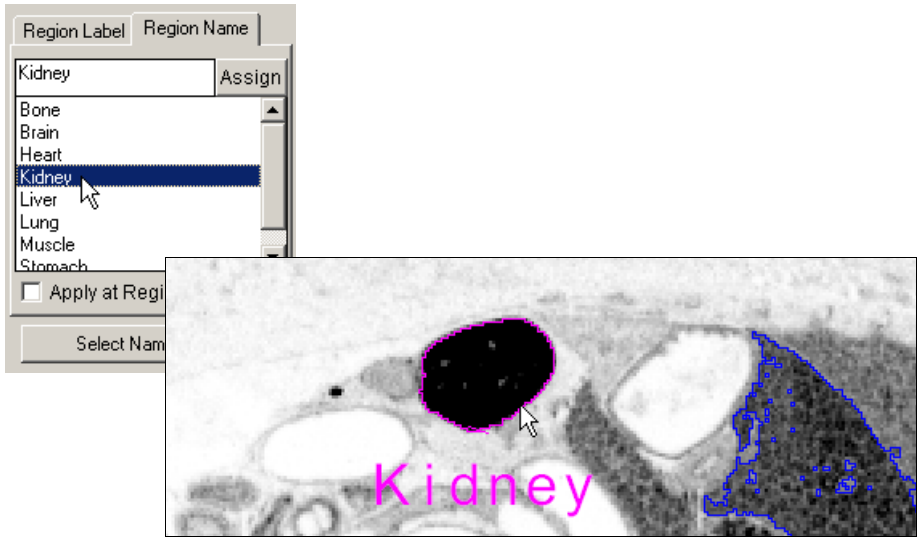


Figure 3-54 Selecting a Name

To change a region name:

1 Select the region whose name you want to change.

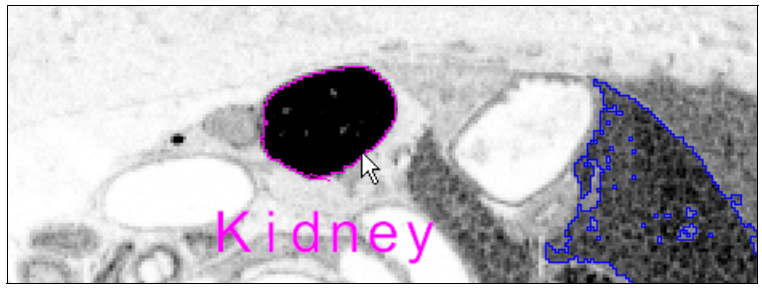


Figure 3-55 Selecting the Region

2 Click the appropriate name in the **Region Name** list.

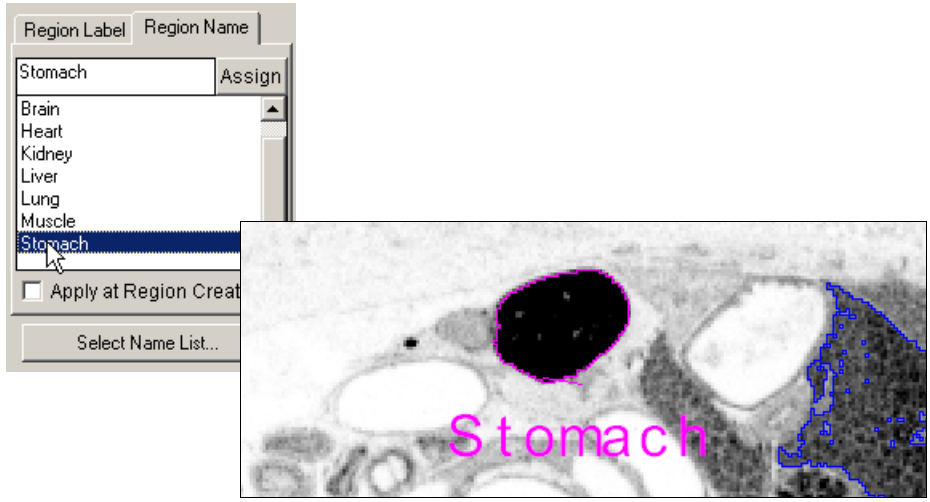


Figure 3-56 Changing Name

To assign names automatically upon creation of a region:

1 On the **Region Determination** toolbox, select the **Region Name** tab.

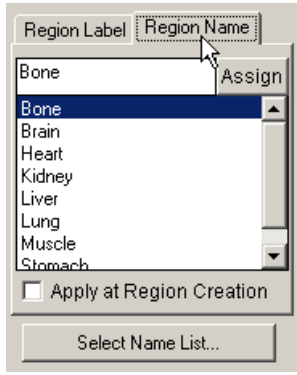


Figure 3-57 Selecting Region Name Tab

2 Click **Apply at Region Creation**.

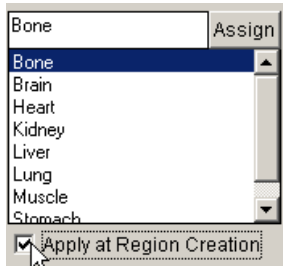


Figure 3-58 Checking Apply at Region Creation

3 Select a tool from the **Region Creation** pane and mark regions sucessively.

Figure 3-59 Selecting Region Creation Tool

The names in the **Region Name** list are assigned one after another.

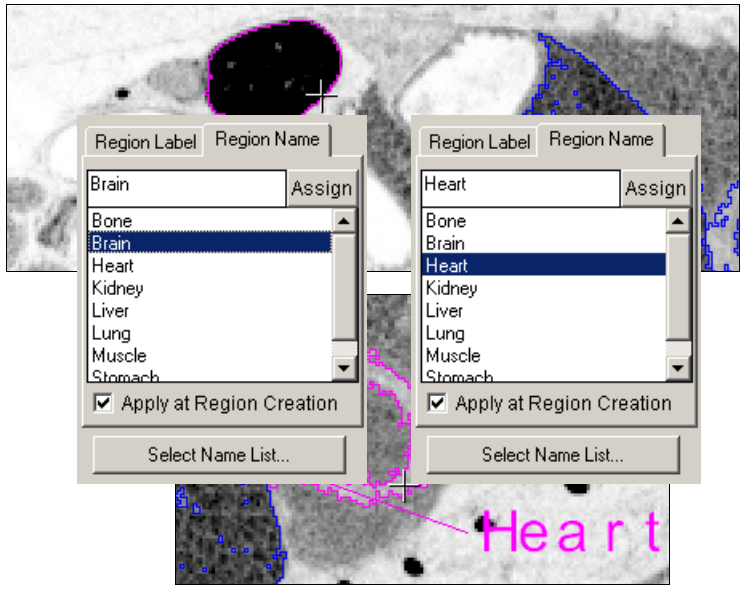


Figure 3-60 Assigning Names sucessively

Audit Trail Logging

If a master nametable is applied to an evaluation, the master nametable's name, ID and table stamp are logged in the audit trail report.

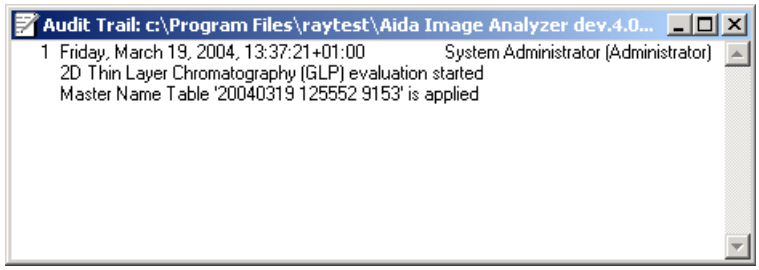

Audit Trail: c:\Program Files\raytest\Aida Image Analyzer dev.4.0...
1 Friday, March 19, 2004, 13:37:21+01:00 System Administrator (Administrator)
2D Thin Layer Chromatography (GLP) evaluation started
Master Name Table '20040319 125552 9153' is applied

Figure 3-61 Audit Trail Logging (Muster Nametable Applied)

If you change the master nametable (modify or replace the current one), the changes are logged in the audit trail report upon creation of a new region.

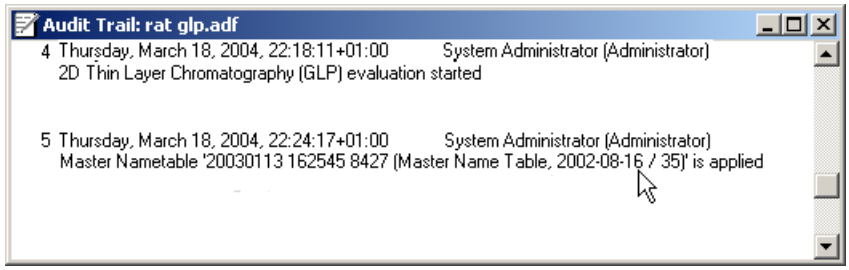

Audit Trail: rat glp.adf
4 Thursday, March 18, 2004, 22:18:11+01:00 System Administrator (Administrator)
2D Thin Layer Chromatography (GLP) evaluation started
5 Thursday, March 18, 2004, 22:24:17+01:00 System Administrator (Administrator)
Master Nametable '20030113 162545 8427 (Master Name Table, 2002-08-16 / 35)' is applied

Figure 3-62 Audit Trail Logging (Master Nametable Replaced)

Note – Changes of the master nametable are always logged, regardless of the Data Trail Settings.

Changing/replacing the master nametable does not change existing name assignments. The new master nametable is applied to newly created regions/assignments only.